American Journal of

PUBLIC HEALTH

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JULY, 1957

volume 47

number 7

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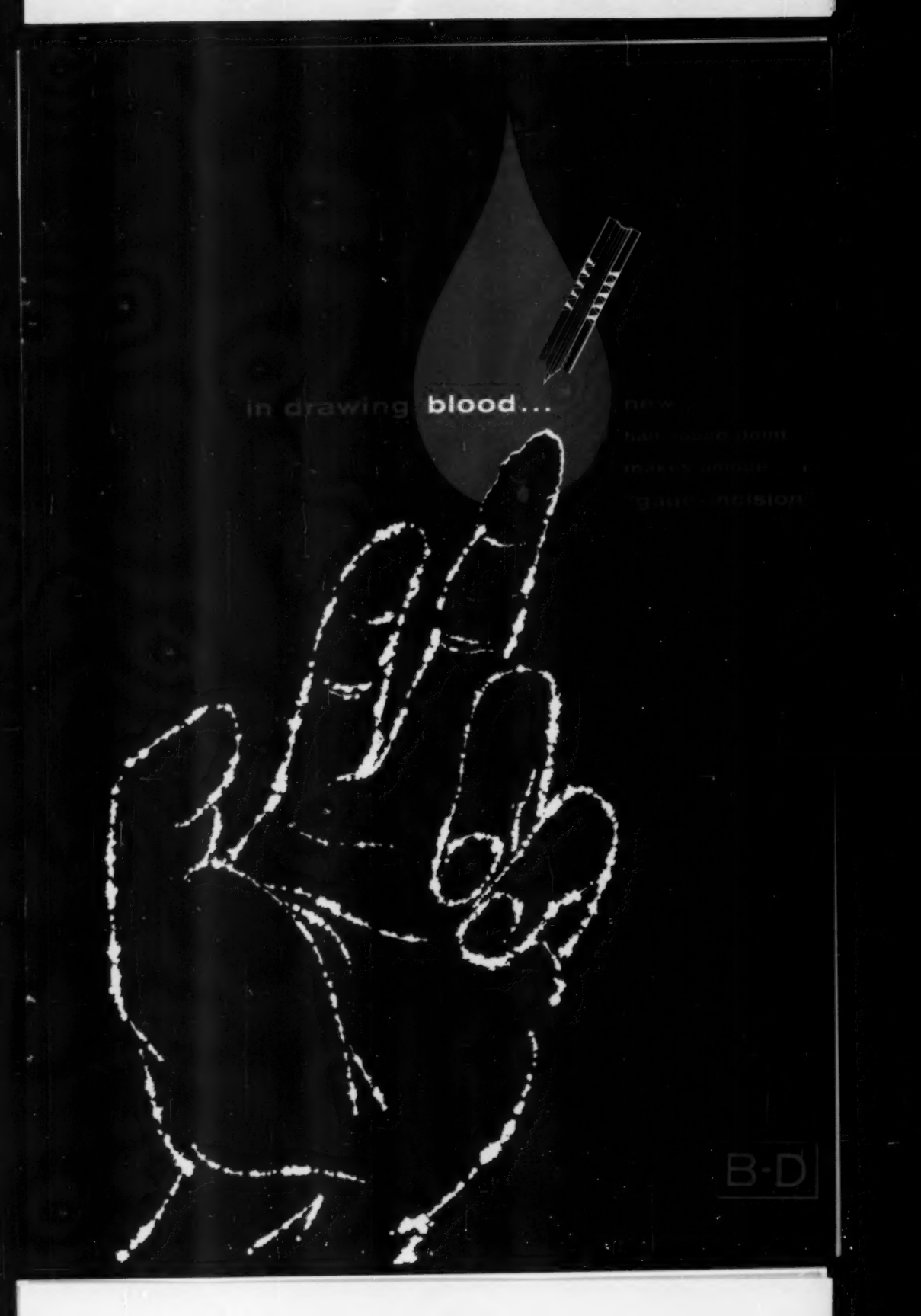
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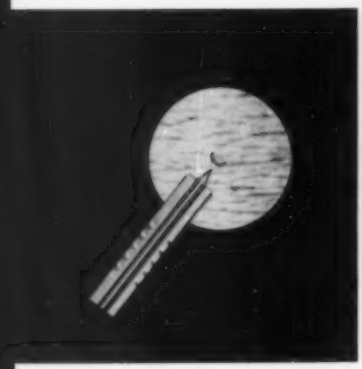

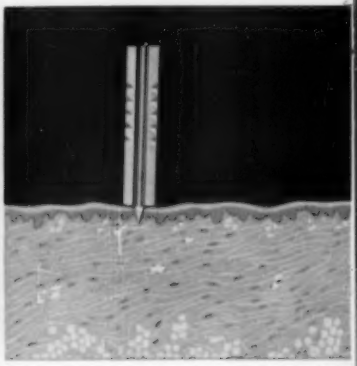

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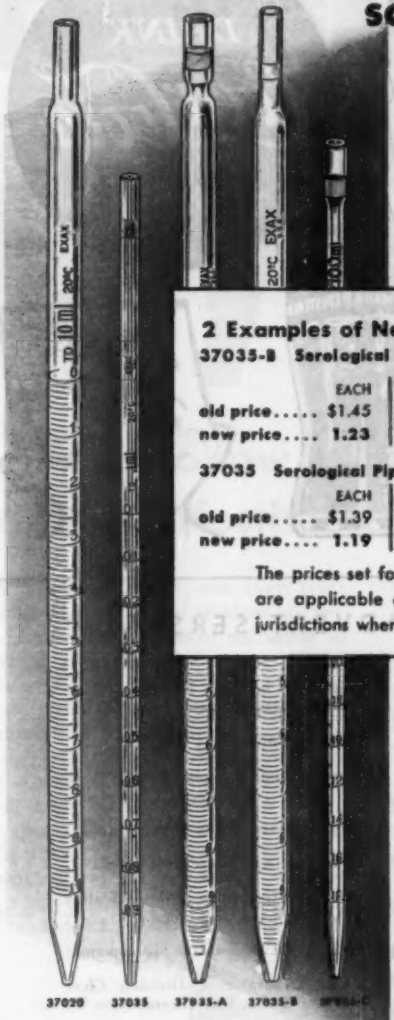

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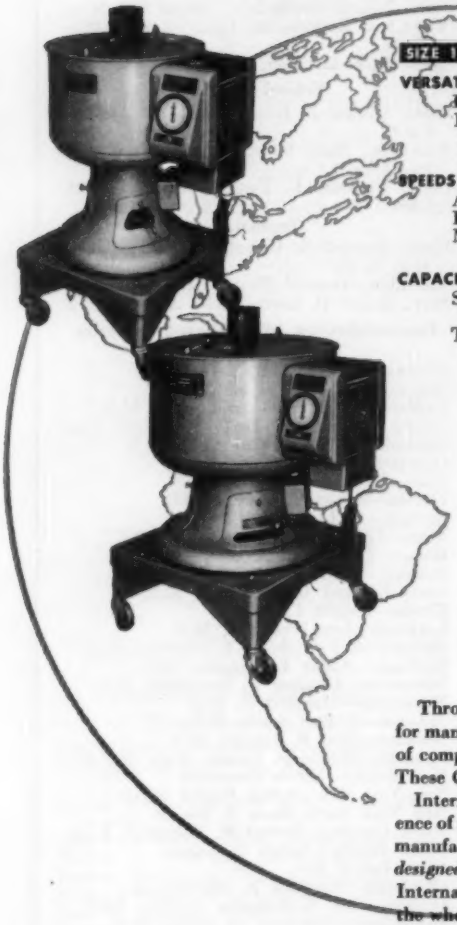

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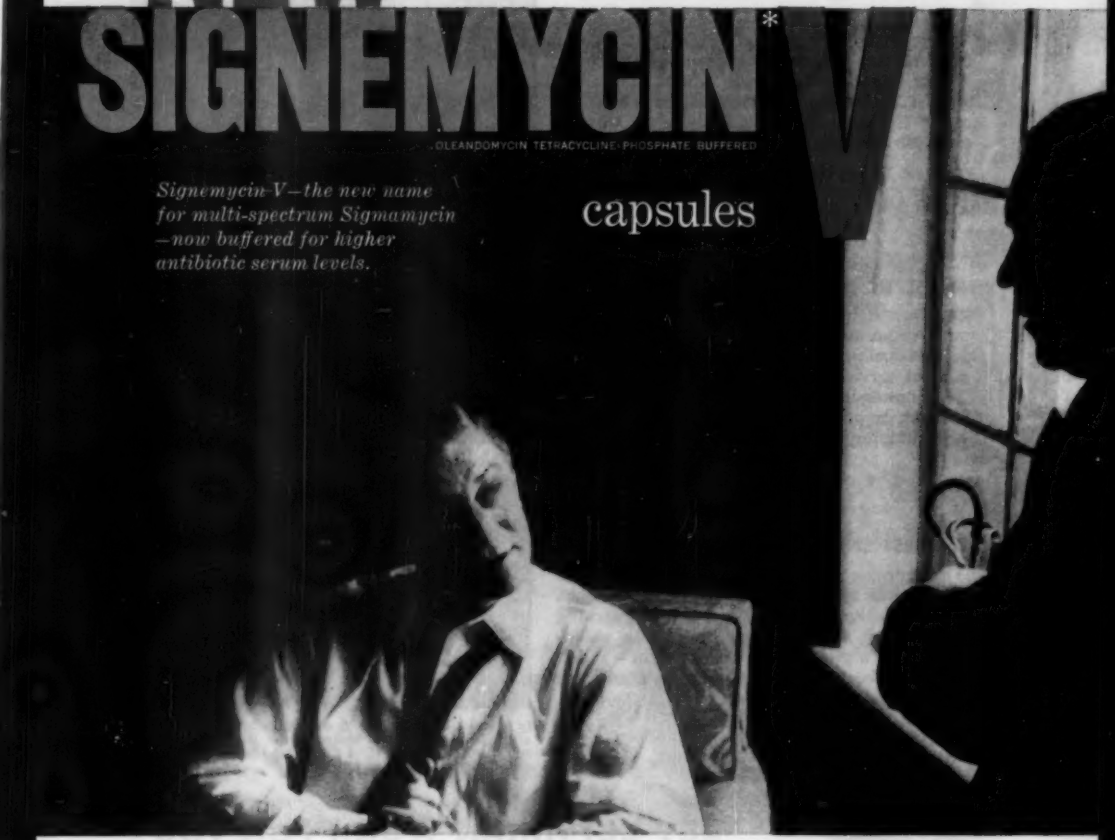

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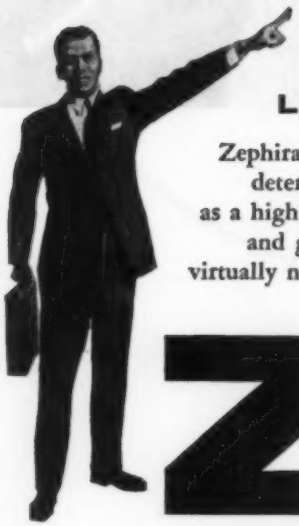

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By Odin W. Anderson

and the Staff of the National Opinion Research Center

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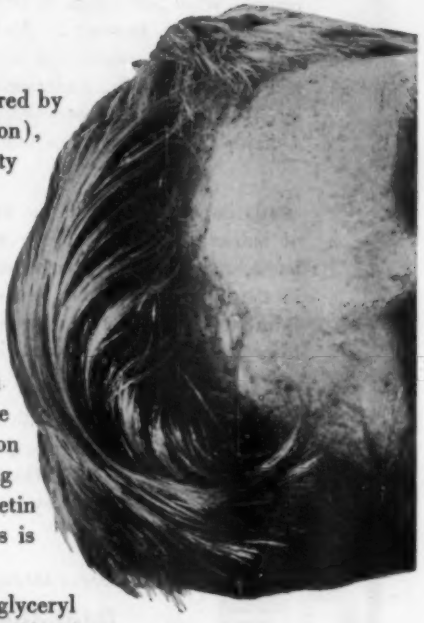

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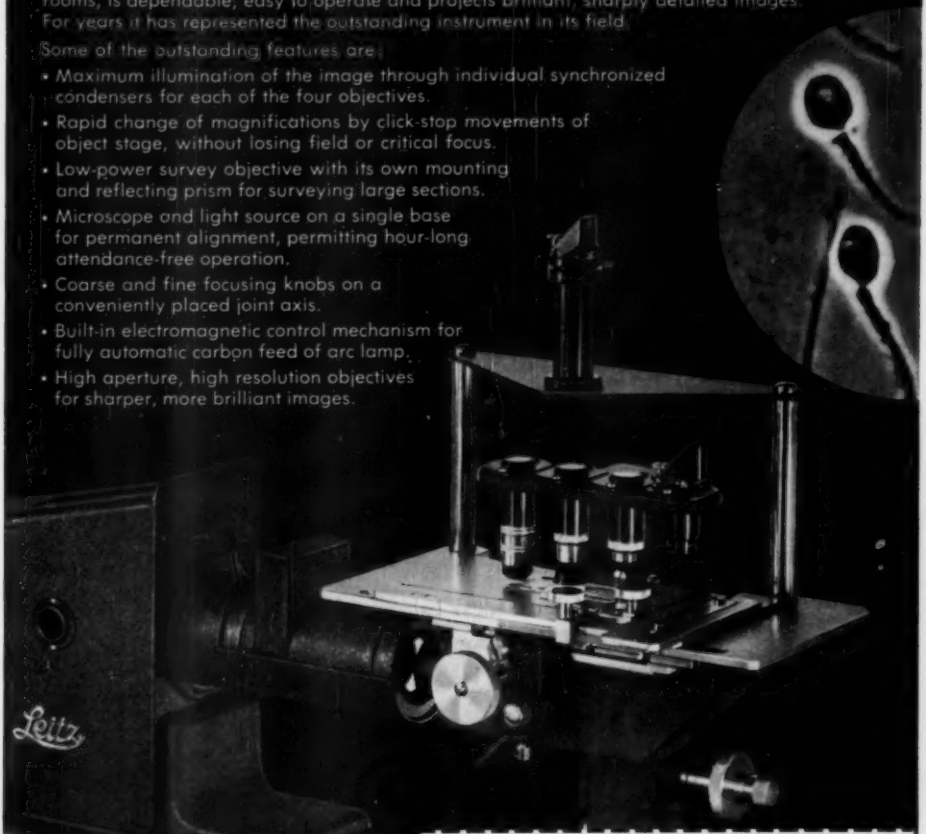

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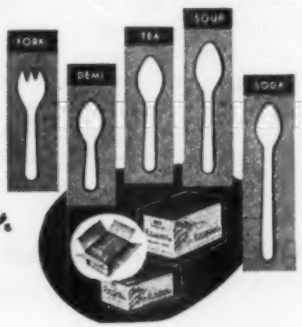

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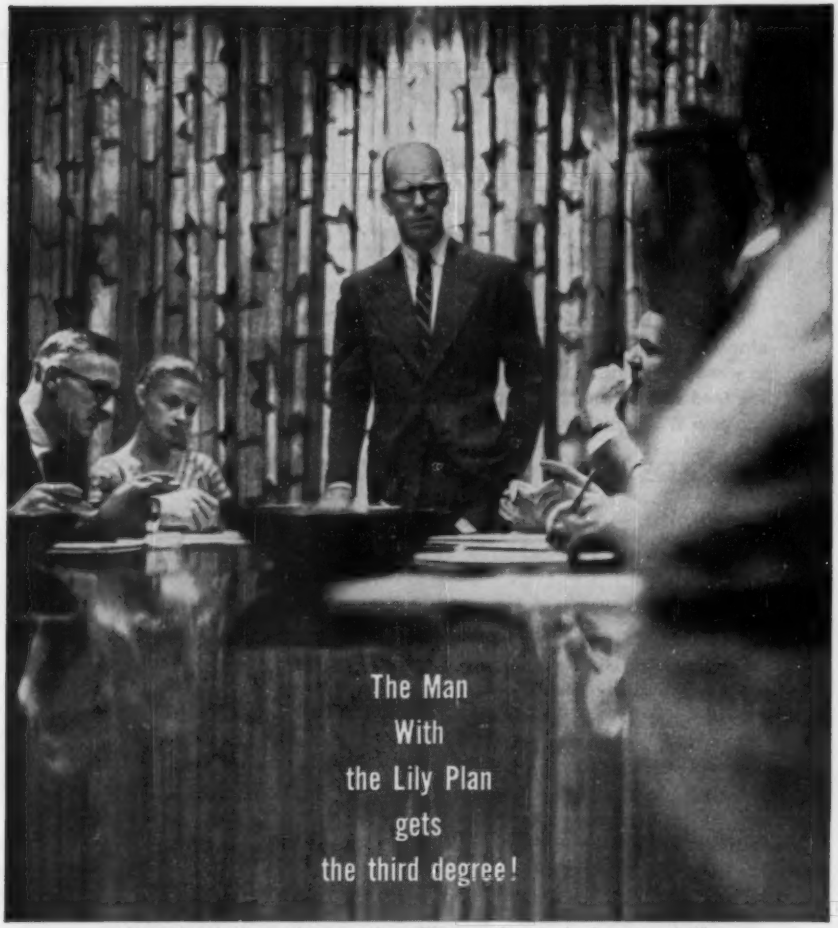

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Mental Health Tasks in General Health Programs

PAUL V. LEMKAU, M.D., F.A.P.H.A.

Everything in this brief paper needs very much to be said and to be repeated again and again. Perhaps the point with the most immediate implication is the author's conclusion that public health can find ways to do clearly defined tasks. It finds difficulty in attacking broad objectives not clearly stated. "It is 'do' rather than 'philosophize' oriented." This paper is a challenge to "do."

There are many mental health tasks for public health programs which need to be administratively planned for. Some are a part of traditional public health programs, for example, laboratory services for the diagnosis of central nervous system syphilis, the determination of bromide blood levels, the estimation of lead content in blood or other tissue. There are newer problems in this field that are also important, but which have not yet become common; it is surprising that barbiturate levels are not more often requested considering the frequency with which these drugs are used to end life. In some cultural settings, such as postwar Japan, there is good reason to have determinations of levels for benzedrene and its derivatives. With the rise in incidence of poisoning with the tranquilizing drugs, there should be interest in methods for determining blood levels for these, since their use is also becoming epidemic. In New York there appears to be a rapid rise in number of suicides in which they are implicated; some of these suicides may actually be due to mental depression induced as a side reaction by some of the drugs. The knowledge of the association of congenital anomalies with rubella is a very firm directive for laboratory work to discover a satisfactory way of preventing this disease or of inducing its occurrence at will to obtain natural active immunity before the age of reproduction in women.

In biostatistics, there are things to be done—tasks awaiting public health services. In this day and age the

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This paper was prepared for use as discussion material for the Fifth Conference on Administrative Medicine of the Josiah Macy, Jr. Foundation, October, 1956.

simpler epidemiologic tasks should not be assigned to research projects exclusively; they should be everyday functions. Yet it is easy to find the number of visits to maternal and child health clinics in a health department's area, but extremely few report mental health clinic visits. One can find the location of practically every case of typhoid fever for decades past, but no one collects the data on the incidence by age, sex, and geographic origin of diseases of sufficient severity to demand admission to psychiatric hospitals. Diagnostic categories are admittedly not clear, but the sociologic criterium of admission to hospitals is very clear indeed and when analyzed by age, sex, and a few other categories is extremely useful. The mental hospitals involved are not often under health department management, but neither are general hospitals housing poliomyelitis services, yet we know the location and sources of those cases. At our present level of knowledge there is not clear-cut use for such data on psychiatric cases, no action immediately to be taken. This is probably one reason the data have not been collected. It is, however, worth pointing out that there is very little action indicated by rise and fall of death rates. These data keep us alert, however, to emerging sociologic changes and conditions we feel we must know about. The same applies to data on the incidence and prevalence of hospitalized behavior disturbances.

Mental illnesses of less severity are probably, in general, not yet well enough understood even for this type of reporting. Some diagnostic categories could be handled, however. Mental deficiency is a symptom that is relatively clearly defined and is known for a considerable proportion of the school population. This symptom could be recorded. For most of the rest of the syndromes only service statistics are of any use. These should be collected as indexes, however inadequate, of the health services of the community. It is a rare health department which includes them in its reported services or as services in the community. They are frequently absent from routine annual and monthly reports even when the health department itself operates the mental health clinics.

There are tasks in sanitation. I have not made a specific survey on the matter, but I suspect few books on sanitary engineering and inspection say much about the not infrequent litigious personalities that show up. Yet staff conferences with sanitarians reveal that these people are frequently more of a problem than are their offenses.

Psychiatrists in combination with epidemiologists have pretty well demonstrated that there is significantly greater risk of mental deficiency in children born of mothers with eclampsia and preeclampsia than of mothers without these complications. Yet maternal health and prenatal clinics are rarely defended on this ground; the task of the prevention of complications of brain damage and its behavior results is not yet recognized or integrated as a public health responsibility. To be sure, the findings are relatively recent. But we have been rather slow in using the quality of the infant as an index to quality and effectiveness of obstetrical care. As most delicate instruments, it is probably not as firm an index as maternal and infant mortality, but it is certainly more sensitive.

The situation in child health is better. There are few well baby clinics now that are not aware of their responsibilities for consulting about behavioral health as well as simpler organic issues. Psychiatrists have not been able to produce completely satisfactory ways of dealing with such problems, nor have they been able clearly to demonstrate the effectiveness of such work in preventing the mental diseases. A few experiments indicate an improvement in symptoms that distress the parents.

There is great need for the health supervising physician and his staff to collaborate with the child psychiatrist and his staff to refine methods and devise ways of testing their effectiveness.

School health programs have almost ludicrously neglected mental health problems. It is, of course, true that educators and the psychiatrists they employ are markedly parochial and tend to exclude the unanointed school physician and nurse. On the other hand, it may be pointed out that had school health services included mental health aims in their original objectives, it is unlikely that the separation would have evolved as it has. It is a very difficult task in most places now to heal the ruptured unity of health aims, but it must and will be done as the changing concepts of health further emerge.

The function of health departments in institutional licensing is another that implies mental health tasks. For many years the only license a nursery school or day-care center needed was issued by the health department; a citizen would have to assume that such a license meant the school met minimum requirements. Yet the license inspection dealt only with physical plant, not with the care of the child. This situation is being corrected in many places by health department action or by joint licensing with departments of education. The licensing of institutions managing behavior of children so that their mental as well as physical environmental suitabilities are inspected appears to be a present mental health task for public health. Similar remarks could be made about nursing homes. One might speculate as to whether it is proper to close a home because of defective drainage, but allow it to operate sans any programs for the stimulation of the minds of the patients.

The remarks regarding school health services are often met by the counterargument that mental health services usually imply treatment procedures, and that, in general, the public health organization avoids furnishing treatment services. This is a valid argument, except that health departments do furnish treatment or arrange for and supervise it in a great many severe, long-term illnesses, such as tuberculosis, poliomyelitis and other orthopedic situations, dentofacial defects, cardiac problems and, in some cases, epilepsy. Many of these diseases are as stubborn and resistant to treatment as mental deficiency, though I know of no health department which offers consultation clinics to practitioners in this condition, except perhaps in Amsterdam and in some places in the British Isles. There are tasks to be done here that are now apparent, but for which public health personnel are loathe to accept responsibility, or do not have the information necessary to see the problem.

For the most part the tasks have been spoken of as those of the health department. It has been pointed out many times that the health department is not representative of all public health, that the field includes far more: the voluntary health agencies, the independent voluntary hospital, some would even include the welfare department and department of education, and many other organizations and agencies. Certainly, the official health department is not to be held responsible for what the community wishes other agencies to do, or for tasks others can or are ordered to do. It does appear, however, that the health department has an essential and unavoidable task of including all health problems in its planning and coordinating functions. If this is true, the department will need to consider and plan for community function in many of the tasks suggested above.

This listing of obvious tasks of the health department in the mental health field includes no radical new types of programs. New programs are certainly

needed. Contemplation of them, however, is often frightening because of their size and complexity. The tasks here listed are, in contrast to this, simply modifications of present practice that require little radically new personnel in the health team. Perhaps they could furnish the foundation of familiarity upon which needed new service programs can be built. The tasks tempt one to seek the basic elements of administrative structure needed to get them done.

The first element would be sufficient education about mental health problems to make them familiar to health personnel. There have been times in history when diseases not understood could not be dealt with rationally, though now they arouse little emotional reaction. Leprosy might be taken as an example, or tuberculosis. While scientific knowledge was undoubtedly effective in reducing stigma attached to these diseases, it is also quite possibly true that familiarity with them came through determination to know them thoroughly, and that the familiarity itself reduced the feeling of stigma. If this is true, education regarding the mental illnesses should relieve the astigmatic avoidance of the mental diseases by personnel responsible for the public health. Education of personnel is certainly an essential mental health element in the administration of general health programs.

Education is most usually successful when it has a clean-cut and immediate purpose. It is doubtful that there would be such widespread knowledge about Salk's vaccine had health people not been required to administer it. It would therefore appear that a good way to stimulate an appetite for this essential element of education would be the acceptance of some of the tasks outlined previously—say the furnishing of health services to patients convalescing after mental hospitalization, or an epilepsy consultation and treatment supervision service, or of reporting the incidence of hospitalized mental diseases by the usual categories of breakdown. If such tasks as these are accepted, the demand for education will rise and will be satisfied. In theory, education should be wanted for its own sake. It is suggested that actually, and perhaps especially in the public health field, it is better accepted when demanded because a job is to be done and one wants to know how to do it.

A second element is administrative structure. There must be someone on whom to tie the bell of responsibility for development, someone who must either produce or explain the reasons for nonproduction: there must either be some performance or a scapegoat. Mental health programs should eventually be large enough to justify a considerable structure, but this will depend upon the particular tasks to be performed. The whole series of tasks need not be accepted at once, nor is the same type of personnel required for each task. Adequate biostatistical reporting as a task requires no new type of personnel but rather simply an assignment and the provision of consultants. If the task of health services for posthospitalized patients is accepted, a few well trained and experienced psychiatric nurse-teachers to educate the general-duty public health nurse may be all that is required except, again, for the provision of the consultant. On the other hand, if school health services are to include psychiatric diagnosis and treatment, a larger structure and specialist clinicians will be required; these can be used, probably, as educators as well. If the point of attack is to be epilepsy, neurologists will be required, and a structure to plan and coordinate their activities for most efficient service will be needed. The structure will be adapted to the task in hand, and the task need not be global. Many of the tasks in mental health do not require that rarest

of all commodities, the psychiatrist with public health interest and training. When he is needed, he can frequently be enticed by a consultant responsibility; some will thus be seduced into a more direct relationship with ongoing programs.

These appear to be the two basic elements of mental health administration of general health programs. Many more could be included and would encompass: the need to improve communication in which psychiatric concepts would be helpful, to improve technics of interviewing, and to recognize disturbed people and get them to some agency organized to help them.

These and many others have been omitted from the discussion because they are not really fundamental but are rather tools to get a task done. Public health is a practical field. It can find ways to do clearly formulated tasks. It seems to have difficulty mainly when asked to accomplish something that cannot be clearly stated. It is "do" rather than "philosophize" oriented. The elements seem to be to educate to the point where the large problem can be seen as a series of tasks, and then to devise an administrative structure on which to "tie the bell" for getting them done. We do not need to do everything at once—to contemplate this is to run for every escape, from accepting popular stigma attitudes to crying "inadequate funds." To do a defined task in a field requires people who can do that task and who can be made responsible for its getting done.

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The Institutes for Physicians and Nurses in the Care of Premature Infants at the New York Hospital-Cornell Medical Center, under the sponsorship of the New York State Department of Health and the U. S. Children's Bureau, will begin the ninth year of operation in the fall of 1957. These institutes are designed to meet the needs of physicians and nurses in charge of hospital premature nurseries and special premature centers, and of medical and nursing directors and consultants in state and local premature programs. The attendance at each institute is limited to six physician-nurse teams.

There is a two-week program for physicians, four-week for nurses. Institutes for the 1957–1958 year will start on September 30 and November 18, 1957, and January 6, 1958. In addition, if the number of applicants is sufficient to warrant it, fourth and fifth institutes will be scheduled beginning March 3, and in April or May, 1958. Early application for these institutes is essential since plans are contingent on the number of applications received.

There is no tuition. Stipends to help cover expenses during the institute are provided. Additional information from Box 143, Institute in the Care of Premature Infants, New York Hospital, 525 East 68th Street, New York 21, N. Y.

Comparative Studies on Patterns of Family Infections with Polioviruses and ECHO Virus Type I on an American Military Base in the Philippines

WILLIAM McD. HAMMON, M.D., Dr.P.H., F.A.P.H.A.; E. H. LUDWIG, Ph.D.; GLADYS SATHER, M.P.H.; and D. S. YOHN

What happens when subclinical infections of poliomyelitis virus invade a family? Earlier researches have not explored this common occurrence. Answer to the question and much else of epidemiologic importance will be found here.

Many excellent reports have been published on the behavior of polioviruses in family groups. These have contributed greatly to the understanding of the epidemiology of the disease. However, with rare exceptions (the outstanding one being a project of Dr. Fox,[1] carried out concurrently with ours), these other studies had certain limitations common to all retrospective studies. Specimens and histories were not taken until a case of poliomyelitis had already been diagnosed in the family; thus only part of the family infection pattern might be revealed. Furthermore, little was learned of what occurred in families where only subclinical infection or undiagnosed disease occurred. The study to be reported here was unique in that it followed continuously for four months in a linear or prospective manner all members of 200 normal families as a random sample of a large community. Feces and blood sera were collected regularly at frequent intervals. One of the project results was a record of silent poliovirus infection as it infiltrated 21 of these families. This silent invasion with poliovirus led to two infections by Type 1 virus, 10 infections by Type 2, 23 by Type 3, and one of a type undetermined.

ECHO virus infections[2] have only been recognized recently and little is known about their behavior within the family unit. ECHO-1 virus, first described by Melnick,[2, 3] was isolated from a healthy infant in Egypt in 1951 and called Farouk strain. It was also isolated in India[2] and many times from specimens collected in 1953 during this study in the Philippines.[2, 5] During the same study it was isolated 14 times from American passengers on ships en route to the Philippines from West Coast ports, while between Guam and Manila.

While testing specimens from the Philippine poliovirus project numerous isolations of ECHO Type 1 virus were incidentally made. Methods for satisfactorily performing serologic tests, both neutralization and complement fixation, were worked out and a brief summary and comparison of findings for each virus group is offered here.

Methods

At Clark Air Force Base on Luzon, Philippine Islands, approximately 200 resident American families volunteered for the family portion of the study. These families consisted of over 700 persons—military, civilian employees, and dependents. Each made visits every two weeks to the study clinic over a

period of four months. At each of these nine visits a rectal swab and a throat swab were taken and at the first and alternate subsequent visits a serum specimen was obtained. One exception was made for the youngest children: only three serum specimens were taken instead of the routine five for others. More complete details of plans and methods have been published previously.[5, 6]

All specimens were frozen promptly and maintained at temperatures of at least —20° C until tested during the next two to three years. Most tests were made using monolayer sheets of monkey kidney cells after trypsinization of the original cells. Virus isolation and neutralization tests were both performed directly on such monolayer cultures. Complement-fixing antigens were prepared from the supernatant fluid of tissue culture growth, for ECHO-1 virus without concentration from monolayer cultures and for poliomyelitis after concentration by the method of Svedmyr, Enders, and Holloway[7] from commercially prepared suspended tissue culture.

By intent, ECHO-1 virus isolations were greatly reduced in number after the early phase of the work. Until then, isolations of this agent had occurred much more frequently than for poliovirus or any other agent. Since the original purpose of the project was to study poliovirus infections it was feared that another agent present with this frequency might from time-to-time prevent the isolation of polioviruses or make their identification difficult. Antiserum for ECHO-1 was, therefore, prepared and subsequently added routinely to the extract of all rectal swabs to reduce the likelihood of growth of this agent. As expected, few isolations were made thereafter. Another difference between poliovirus and ECHO-1 virus studies lies in the completeness of serologic testing.

All persons in the project were tested serologically in a screen test for poliovirus infections, at least, and if as a result infection was suspected, specimens from all members of his family were more completely tested. On the other hand, with few exceptions those families studied for ECHO-1 virus infection were limited to those in which one individual was found excreting ECHO-1 virus as a result of one of the early tests prior to the addition of antiserum. Thus, the total population was not studied completely for ECHO-1 virus infections as it was for poliomyelitis. However, all members of the particular families finally used for this report were studied with equal completeness and results are thus comparable. All households found to have even a single poliovirus infection of any type in a member of the intimate family are included in this report. Two families with infection occurring only in a domestic servant were excluded. The number of families known to contain a person with an ECHO-1 virus infection happens to equal almost exactly that with polioviruses, and the number of infected persons in each group of families is equal. Comparisons are thus facilitated.

Findings

Tables 1 and 2 contain illustrations of a variety of patterns in the results of

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Table 1—Laboratory Findings in Selected ECHO-1 Virus Infections

Clinic Visit	2–67 Age 2			2–27 Age 3			2–205 Age 8			2–47 Age 29			1–184 Age 5			2–147 Age 31			2–203 Age 31		
	V[1]	CF[2]	NA[3]	V	CF	NA	V	CF	NA	V	CF	NA	V	CF	NA	V	CF	NA	V	CF	NA
1	+	<4	<4	0	<4	<4	0	<4	<4	—	16	<4	+	—	8	0	—	<4	—	—	<4
2	0			0			—			—			+			0			—		
3	+	—	—	0	<4	<4	0	4	—	+	64	4	+	—	32	0	—	64	0	—	<4
4	0			0			+			0			0			0			+		
5	0	64	>256	+	16	16	—	32	32	0	128	128	0	—	128	0	—	16	0	—	64
6	—			Pol.*			0			0			0			0			0		
7	—	—	—	Pol.	32	8	0	32	—	0	64	64	0	—	32	0	—	16	0	—	<4
8	0			0			—			0			0			0			—	—	
9	—	16	128	0	32	16	0	32	32	0	64	64	0	—	8	0	—	16	0	—	<4

[1] Virus isolation test. + = positive; 0 = negative; — = not done. Tests made in most instances after ECHO-1 antiserum had been added to the specimen to prevent further isolation of this agent since specimens were tested for the sole purpose of detecting poliovirus.

[2] Complement-fixation test. Figure represents reciprocal of serum dilution end point.

[3] Neutralizing antibody test. Figure represents reciprocal of serum dilution end point.

* Poliovirus isolated.

Table 2—Laboratory Findings in Selected Poliovirus Infections

Clinic Visit	2–114 Age 3 Type 3			1–259 Age 4 Type 3			1–168 Age 9 Type 2			2–186 Age 27 Type 3			9–60 Age 23 Type 3			2–27 Age 3 Type 3			1–33 Age 7 Months Type 2		
	V[1]	CF[2]	NA[3]	V	CF	NA	V	CF	NA	V	CF	NA	V	CF	NA	V	CF	NA	V	CF	NA
1	0	<4	<4	0	<4	<2	+	<4	512	0	<4	<4	0	0	32	0	<4	<4	+	<4	32
2	0			0			+			0			0			−			0		
3	0	−	<4	0	4	<2	0	16	256	0	<4	<4	0	0	16	0	−	<4	+	−	−
4	0			0			0			0			0			0			0		
5	E-1	<4	<4	0	4	<2	+	8	256	+	<4	<4	+	0	32	E-1	<4	<4	−	32	1,024
6	+			+			0			0			0			+			0		
7	+	4	16	+	64	128	0	8	256	0	8	512	0	4	1,024	+	−	128	0	−	−
8	0			0			0			0			0			0			0		
9	0	8	1,534	0	16	32	−	8	128	0	8	512	0	0	256	0	4	256	0	32	1,024

[1] Poliovirus isolation. + = positive, 0 = negative, − = not done, E-1 = ECHO-1 virus isolation.
[2] Complement-fixation. Figure indicates reciprocal of serum dilution end point.
[3] Neutralizing antibody. Figure indicates reciprocal of serum dilution end point.

Table 3—Poliovirus Infection in American Families: Age-Specific Rates per 100 for Four-Month Period

Age	No. Infected	Population	Rate	Rate in "Susceptibles" *	Rate in "Immunes"
0–4	18	150	12.0	14.2	0.0
5–9	8	132	6.1	10.7	0.0
10–19	0	43	—	—	—
20+	10	378	2.6	5.8	1.4
Total	36	703	5.1	—	—

* "Susceptibles" defined here as those not found to have detectable antibody to the infecting type of virus prior to infection, or those in which a combination of findings indicated that antibodies probably were not present prior to infection. These latter were restricted to certain of those found to be already infected when the study began; thus no earlier serum specimen was available.

the laboratory tests performed for ECHO-1 virus and polioviruses. Only the homotypic serologic reactions are shown for poliovirus infections. No conspicuous differences appear in patterns of ECHO-1 and polioviruses. Complement fixation seems slightly more satisfactory for ECHO-1 virus, but the difference may lie in the method of preparing the antigen. In addition, neutralizing antibodies in ECHO-1 virus infection may decrease more rapidly in titer as seen in Table 1, Nos. 1–184 and 2–203.

In Table 3 are presented the age-specific poliovirus infection rates as determined for American members of all families by probable immunologic status as determined by serology prior to the current exposure. It will be noted that in the period of only four months 14 per cent of all susceptible children under five years of age were infected with a poliovirus and that this represented 12 per cent of the total population of that age. Since this occurred during August through November in a tropical country, the total annual rate might be three times this level. Other ages had somewhat lower rates, as might be expected, but even that for adults is surprisingly high. Unfortunately, similar data cannot be presented for ECHO-1, but since an equal number of persons were found infected with ECHO-1 in only a small portion of this same population similarly tested, the rates are certainly far higher for this one ECHO virus than for all three types of poliovirus combined. Yet these are rather phenomenal poliovirus infection rates for any place, at any time.

Table 4 presents tabulations of certain other comparative features, including the basic data on the number of families and persons included, persons per family, and the number of persons infected. It fails, however, to indicate that five families are common to both series, both viruses being active in these

Table 4—Certain Basic Family Comparisons, Poliovirus Infection Versus ECHO-1 Virus Infection

	Poliovirus	ECHO-1 Virus
Number of families with infection	21	19
Number of related family members	85	69
Average number per family	4.05	3.9
Number of Filipino domestics in study	12	5
Number of Americans infected	36	36
Number of Filipinos infected	1	1

Table 5—Age Distribution of Family Members and Age-Specific Infection Rates per 100

Age	Poliovirus				ECHO-1 Virus			
	No. of Persons	No. Infected	Rate per 100		No. of Persons	No. Infected	Rate per 100	
0–4	26	18	69	59	19	15	79	81
5–9	18	8	44		12	10	83	
10–19	1	0	—		2	1	—	
20–29	19	6	32	25	16	7	44	28
30+	21	4	19		20	3	15	
Total	85	36	42		69	36	52	

five families. Examples of dual infections are seen in Table 2, Nos. 2–27 and 2–114.

In Table 5 are included the age distributions of the two sets of families and the age-specific infection rates with each virus. It may be observed that the families are quite comparable in age distribution, but infection rates by age for the two viruses are different. Overall rates are higher with ECHO-1 virus. This is due to the conspicuously higher rates in younger age groups. Yet, substantial infection rates do occur among adults, essentially similar to those of poliomyelitis.

The distribution of neutralizing antibodies by age is presented in Table 6. The per cent with antibody increases with age with both types of virus but antibody for ECHO-1 virus is less frequently found in adults than is that for polioviruses. It is quite possible that in many it may have fallen to a level not detected by the tests performed.

Table 6—Comparison of Per cent with Neutralizing Antibodies by Age Groups

Age Group	Poliovirus * Antibody		ECHO-1 Virus Antibody	
Children	8/45	18%	4/33	12%
Parents	25/40	63%	8/36	22%

* Antibody to type of virus found to be present in the family.

To present infection rates among serologically "susceptible" and "immune" persons Table 7 has been constructed. Unfortunately, even in this type of linear study the exact serologic status of all individuals prior to infection cannot be determined. The study began at a time when a few were already infected with each of the viruses and possessed neutralizing antibodies at the time of the first examination. In these the level of antibody prior to infection obviously could not be determined by test. An example may be noted in No. 1–168 of Table 2. This person has been classified in Table 3 as a "susceptible." It cannot be assumed correctly that all persons becoming infected must have been free from antibody prior to exposure, although in the past many workers have made such assumptions in poliomyelitis studies. Good evidence that persons with poliovirus antibodies may become infected with homotypic virus appeared in this study. Several persons with a constant, low, or intermediate antibody level during several observations were shown to have

Table 7—Infected Families—Comparison of Infection Rates by Household Status and by Serum Neutralizing Antibody Findings

Household Status	"Susceptibles" *		"Immunes" †		Total	
	Poliovirus					
Children	26/37 ‡	70%	0/8	0%	26/45	58%
Parents	6/15	40%	4/25	16%	10/40	25%
Domestics	0/0	0%	1/12	8%	1/12	8%
Total					37/97	38%
	ECHO-1 Virus					
Children	26/29 ‡	90%	0/4	0%	26/33	79%
Parents	10/28	36%	0/8	0%	10/36	28%
Domestics	?	—	?	—	1/5	20%
Total					37/74	50%

* "Susceptibles" are defined here as in Table 3, on the basis of serology.

† "Immunes" are defined as those possessing neutralizing antibody to the infecting virus prior to the time when infection is believed to have occurred.

‡ The immunologic status prior to infection for one child could not be determined with certainty, but he was placed in this group.

become infected, presumably reinfected, for example No. 9–60, a domestic servant, in Table 2. Four parents presented similar patterns of infection, or reinfection, even though possessed of homotypic antibody.

Table 7 shows infection rates to poliovirus "susceptible" parents to be 40 per cent, but still 16 per cent among "immunes." It was 8 per cent among a smaller group of immune domestics. Infection of immunes was not observed with equal certainty for ECHO-1 virus.

It will be noted that 90 per cent of "susceptible" children became infected with ECHO-1 and 70 per cent with polioviruses, whereas the rates for "susceptible" adults are about equal, 36 per cent and 40 per cent, respectively. This suggests that the immune status of the adults to ECHO-1 virus may be higher than indicated by the neutralizing antibody tests. This in turn raises a question about the persistance of these antibodies as compared with those for polioviruses and the rapid fall of titer occasionally observed and pointed out above in connection with two persons in Table 1.

The crude poliovirus rates within infected families, for children 58 per cent and for parents 25 per cent, are not as high as in some reported studies; but the fact that there were no recognized cases as possible sources of infection and that the strains of virus were not epidemic strains (no cases recognized in community) might account at least in part for the difference. Again, the high standards of hygiene practiced in these military families on a foreign base might have been an important factor. No significant differences could be noted in sex patterns of the two infections. Both sexes became infected with approximately equal frequency, both as children and as adults.

Table 8 presents the data on families in which only one person was infected and shows the frequency with which the

Table 8—Comparison of Families with Only One Infected Member by Family Status

Only Person Infected	Poliovirus	ECHO-1 Virus
Child	6	4
Mother	2	1
Father	3	1
Total	11	6

single infected person was the father, the mother, or a child. In both types of virus infections a single child was most frequently the only infected person, but occasionally a mother or a father was the only one. The epidemiologic implications of these findings are intriguing but cannot be discussed here. In poliovirus infections 11 of the 21 families had only a single infection but with ECHO-1 this occurred only six times among 19 families, another suggestion of greater infectiousness of the latter virus.

Finally, an attempt was made to determine whether there was any association between minor illness (the only type encountered) and either of these two types of infection. At each clinic visit each person or parent was supposed to be questioned briefly regarding any illness since the last visit. Many minor respiratory complaints were recorded but, unfortunately, many records are incomplete in that no entries are found for some visits. It cannot be safely assumed that all incomplete entries represent negative answers, although the person responsible for this questioning states that such was usually the case. As presented in Table 9, a tabulation of illness associations at a reasonable time for each infection—together with suitable age matched controls from those shown not to be infected—shows no significant differences between the illness associations in the two infections. Furthermore, if anything, the controls appear to have had more illness than those with either type of infection. We are, therefore, forced to conclude that there is no evidence indicating that either polioviruses Type 1, 2, or 3 or ECHO Type 1 (all active in these families) produced any illness at all.

One cannot draw conclusions from these results that the ECHO-1 virus is always nonpathogenic any more than one should draw such a conclusion from this study for polioviruses. The only evidence we have to the contrary for ECHO-1 virus cannot be completely

Table 9—Comparison of Association of Illness with Infection

		Poliovirus		ECHO-1 Virus	
		Infected	Controls	Infected	Controls
Children	Ill	9	11	9	11
	Not ill	8	4	8	2
	Uncertain	9	11	9	13
Adults	Ill	3	3	4	5
	Not ill	4	4	3	2
	Uncertain	4	4	4	4
Total	Ill	12	14	13	16
	Not ill	12	8	11	4
	Uncertain	13	15	13	17
Total per cent recorded ill		32	38	35	43

presented here, but clear-cut serologic rises to this virus were observed in serial serum specimens from two patients hospitalized at Clark Air Force Base Hospital during the two years following the field collections reported here. These patients were diagnosed clinically as nonparalytic poliomyelitis, but this diagnosis could not be supported by serologic tests. Mumps, lymphocytic choriomeningitis, and Japanese B encephalitis were also ruled out by serologic tests.* The positive ECHO-1 serology suggests that this virus may have been the causal agent, but further evidence is needed before any conclusion is warranted.

Summary and Conclusions

On a large military base in the Philippines a sample consisting of 200 American families and a few of their native domestic servants was the object of a four-month linear study for poliovirus infections. No clinical poliomyelitis was recognized on the base during this period of time. Repeated specimens were collected for virus isolation and serology to determine the epidemiologic pattern of poliovirus infections. A small number of these specimens were also tested for evidence of ECHO-1 virus infections. The comparative findings are presented and discussed.

Sample patterns of virus isolation and serologic results are presented for each type of virus infection. No great differences are observed.

Infection risk during the four-month period for all persons can be calculated only for polioviruses. Poliovirus infection rates among serologic susceptibles of the 703 American family members ranged from an unexpected and unusual high of 14.2 per cent for the zero- to four-year age group down to 5.8 per cent for adult parents. Age-specific infection rates, regardless of immunologic status, ranged from 12 per cent to 5 per cent by the same age groupings. The annual rate in this tropical country might well be three times these figures. There was a total of 36 infections and all three types of poliovirus were represented.

Since 36 ECHO-1 virus infections were also found among a much smaller number of families tested for infection with this virus, it can be concluded that the risk of acquiring ECHO-1 virus infection was much greater than for all three types of poliovirus combined.

The poliovirus infections occurred in 21 families with 85 members and 12 domestic servants included in those examined. Nineteen families, including five of those with poliovirus infection, were discovered with ECHO-1 virus infections. These were studied with the same intensity as those with poliomyelitis. These two groups of families were found to be of comparable size and to have a similar age distribution. Age-specific infection rates were higher for ECHO-1 virus than for polioviruses. The differences in rates were greatest in the zero- to nine-year age group, being 81 per cent for ECHO-1 virus and 59 per cent for polioviruses.

When serologic "susceptibility" was considered in the calculation of age-specific rates it was found that 90 per cent of the "susceptible" children developed ECHO-1 infection and 70 per cent poliovirus infection. Rates among "susceptible" adults were essentially equal for the two infections, 40 per cent and 36 per cent, respectively. Fewer "immunes" were encountered in tests for ECHO-1 virus neutralizing antibodies, but the proportion increased with age, as occurred with poliovirus. No "immunes" were observed to become infected with ECHO-1 virus. However,

* These latter tests made at the U. S. Army 406th Medical General Laboratory in Japan.

five of 37 "immune" persons developed poliovirus infection. The virus and the preexisting antibody were of the same type. Sex distributions among the infected were similar for the two viruses at all ages.

In several families only one household member became infected. This occurred 11 times with poliovirus and six times with ECHO-1 virus. This finding also suggests a greater infectiousness of ECHO-1 virus. With both viruses, a child was most frequently the only family member infected, but on fewer occasions mothers and fathers were the only ones involved.

No significant association could be found between either type of virus infection and any type of illness. However, serologic rises to ECHO-1 virus in sera from two patients from this military base suffering from aseptic meningitis support the possibility that ECHO-1, like ECHO-6 and perhaps others, may occasionally cause aseptic meningitis.

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Efforts to Define and Help the Health Officer to Fulfill His Role in Mental Health Programs

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This is the last or "anchor" paper of three in a "Symposium on the Health Officers' Mental Health Responsibilities: Present and Future," that served as the groundwork for a broad discussion of the problem. The other contributions to the symposium appeared in the February and May issues.

The increasing awareness that mental illness, along with other chronic diseases, should be regarded as a public health problem is, perhaps, best exemplified by the inclusion of a symposium such as this. The authors believe their assignment for this symposium to include descriptive statements of what the role of the health officer should be in mental health programs and then some discussion about methods that have been used to facilitate his filling these roles. In this presentation we consider the health officer under discussion to be the administrative director of a local public health program.

What should be the role of a health officer in a mental health program? Dr. Frank Boudreau writes [1]: "The burden of prevention of mental illness and the promotion of mental health should fall on public health workers." He is also quick to add that public health workers will need assistance in this effort from professionally qualified persons from many other fields. In its most meaningful sense the mental health program of a local health department must relate to all community activities having to do with mental illness and mental health. Such a concept suggests the strategic position of the health officer as perhaps the only trained community health administrator in his area. He is officially entrusted by the people with the job of leadership in developing the community health interests and programs and putting them into effect. His training qualifies him to assume this role of coordinator and stimulator. His breadth of comprehension of the health problems with which his public is faced enables him to be aware of health needs, both felt and unfelt.

This latter point perhaps needs some elaboration. Many components of mental health programs, as they exist today, are based upon theory not yet validated. We know, for example, that birth injuries contribute to mental disorders. For this reason all local health officials have a responsibility, in cooperation with the medical and allied professions, to develop a program that has as its objective: (1) that every birth should be planned for by the parents and that every expectant mother shall have adequate prenatal, obstetric, and postnatal care; and (2) that every infant shall have modern pediatric supervision through the first year of life and that every preschool child shall have that type of supervision, including nutritional guidance, which will insure that by the time school age is reached he will be free of all correctible physical and

emotional defects and be protected against those diseases for which an immunizing agent is available.

There is considerable evidence to indicate that there is a relationship between mental illness and maternal deprivation. The question can always be raised whether a working mother is less or more able to supply adequate affection and care. The answer to such a question is determined by many unfelt needs. These relate to cultural, social, and economic factors to such a degree that only through study of a community or a family can we expect to discover much helpful information. Mental health programs which include efforts to study this phenomenon will require elaborate investigations with ramifications which reach far into the sociologic structure of the community. The health officer is strategically located to administer and stimulate community action of this sort. Planning leadership for action in the health area is his responsibility, even if it involves agencies and individuals whose primary responsibility may be in other areas, such as welfare, education, agriculture, or industry.

The health officer will, however, need a great deal of help in defining his area of activity and in planning for extra resources to which he must turn for assistance in developing this program. The role of the health officer, then, would seem to include: (1) leadership as a public health official in helping the community define its felt needs; (2) coordination of the numerous agencies and individuals who are involved in the community's mental health, as suggested by Buell [2] and many others; (3) organization of community resources to deal with not only the identification of community problems, but also program planning to meet these problems as they are defined by the resource groups; and (4) as a resource himself who is familiar with and can invite other helpful resource individuals into participation in the local program. Probably the most important aspect of this work would be found in his role as a leader, alert to needs in his own community and, therefore, in a position, as Dr. Paul Lemkau explains, to give direction and significant meaning to any program developed in his community.[3]

In discussing efforts to help the health officer fill his role, one should not overlook the active assistance which has been offered by federal agencies. The assistance to local mental health programs offered through the National Institute of Mental Health is described effectively by Dr. James Lowry in a recent article.[4] Financial assistance, as well as program planning assistance, which has come from the various regional offices of the Public Health Service, has reached into local health departments in a very meaningful way. The support of training programs to provide communities with a larger number of more highly trained people is one of the most significant efforts to help the health officer in fulfilling his role.

Efforts by state health departments have been increasing throughout the last ten or fifteen years. In a descriptive brochure published by the Public Health Service in 1954 [5] one is impressed with the frequency of statements to the effect that health officers and public health nurses are being brought together by the state mental health

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This paper was presented before a Joint Session of the Health Officers, Mental Health, and Public Health Nursing Sections of the American Public Health Association at the Eighty-Fourth Annual Meeting in Atlantic City, N. J., November 12, 1956.

agency for inservice training experiences to familiarize them with advances in mental health procedures. Although informal contacts between health officers and specialists in mental health have been going on for a good many years, the formally arranged health officers' workshop on mental health has become widely developed only during the last eight years. The popular acceptance of the Institute on Mental Health held in Berkeley, Calif., in 1948, which led to the writing of the book "Public Health Is People," [6] is a reflection of the interest in this subject held by public health administrators as well as mental health professionals.

Following this the first of the mental health workshops for public health officers in many areas of the country, including North Carolina in 1950, began to conduct similar workshops for not only health officers but also health nurses, health educators, and sanitarians. The obvious intent of the workshops has been to familiarize the health officers and their staffs with areas basic to their understanding of mental health. The opportunity for health officers to meet psychiatrists and to discuss with them methods of psychiatric treatment, different approaches to the psychiatric patient, as well as ways in which the public health team might assist psychiatry in meeting the needs of the mentally ill portion of our population, are all areas that have not been covered in the usual medical school experience of a physician. By demonstrating basic principles of psychiatry, as they might be observed in their routine activities, the public health team is led to a broader understanding of the way in which certain preventive services in any community might be worked into the already existing programs in health departments. The psychiatrically oriented resource group at these workshops felt a need for an alertness to emotional and mental strain and for improved early diagnosis and treatment activities, especially in the public health clinics.

Another important need recognized in all the workshops that have been reported was found in the area of overlapping activities between various public and private agencies in any given community which might be regarded as a part of the mental health program. In the Mental Health Institute for Public Health Physicians (held in June, 1950, in Utah), another important trend was reiterated when Dr. Coleman emphasized the role of the health officer as being one of coordinating and integrating the activities of the health department into other community agencies' activities in the field of mental health.[7]

The authors have had an opportunity to observe a series of mental health workshops which were arranged for health officers and mental health workers in North Carolina in five successive years. There are several interesting observations concerning evidences of progress in the health officer group as they were reflected in this series of workshops.[8] The program content and the discussions during the meetings in 1950 and 1951 included material concerning clinical activities which might be assigned quite properly to the field of psychiatry, or to the psychiatric team. True, along with this went discussion in the area of human relationships and in the augmenting of clinical services in which the health department already was involved to include more effective mental health approaches.

Even these earliest institutes seemed to dispel the feeling of frustration regarding psychiatric problems and there was a growing recognition that public health workers in all disciplines could be helpful. Several commented that the good physician, nurse, dentist, teacher, and parent have been working in this new-old field of mental health all along. The major emphasis, however, seemed to be one in which the health officer

wanted to find out more about psychiatry and to become more familiar with its basic concepts. The group as a whole showed considerable growth in that the programs and material contained in the discussions in the years of 1953 and 1954 reflected a much broader interest on the part of the health officer group in program planning and community-wide approaches which might be made to mental health generally. There was strong emphasis on the role of the various members of the public health team, but also a marked emphasis was obvious on other agencies and institutions in the community which would be involved in broad mental health programs. Examples of this were seen in the 1954 meeting where practically an entire day was spent in discussing the relationship between the activities of the community mental hygiene clinic and a health department staff. Another afternoon was spent at this same meeting on discussing the way in which members of the health department could assist in the alcoholic rehabilitation program of the state. The 1955 meeting showed the group coming to grips with questions of expanding present public health programs to the point where they included more mental health than they had heretofore. With about 80 physicians and over 500 graduate nurses in our full-time local health department staffs in North Carolina their potential impetus to mental health progress in the state is great.

Evaluation of such a series of workshops is obviously impossible, but the authors believe that real progress in the participating group was observed throughout the five years. An important addition to the programs of the mental health institutes was thought to be the demonstrations in which audio-visual materials, which might be used by health department personnel as a part of their mental health activities, followed by intensive discussion of the materials being demonstrated, seemed to be of increasing interest to the group as a whole. As one of the health officers put it, "To see how these materials are used by professional people familiar in the area of mental health is extremely helpful as it makes it possible for us to conduct mental health activities in our own communities in response to the many requests received for them." Obviously there was great interest on the part of the health officers who did participate in these workshops in seeing to it that requests from their own communities were met as promptly and effectively as possible. Time and again the health officers gave examples of how they and their nurses had included in their crippled children's clinics, or in their prenatal clinic activities, some of the principles which had been advanced at the different workshops or which they had learned from their stimulation to current reading in the mental health field.

Another evidence that perhaps something rather important had happened to the health officers has been found in the number of requests that the state mental health consultants have received from local health officers to assist them in various aspects of their general health programs in their local communities. The basic literature of public health today is so full of references in which the integration of mental health programs into existing public health activities is recommended that it is impossible to specify the exact extent that the workshops separately were instrumental in advancing the health officers' interests in utilizing consultant services.

In a fairly rapid survey of the recent requests that have come from local health officers to the Mental Health Section of the State Board of Health, one gains the feeling that at least half the health officers in the state are regularly asking for assistance from the state consultants. The authors would like to sug-

gest that this is another distinct effort to help the health officer fulfill his role in community mental health programs. Requests have come from health officers for assistance in some of the administrative aspects of developing community mental health programs, such as, how can a generalized health department staff plan closer coordination with the specialized staff of a new mental health clinic? Another example might be that of a consultant being called in to help a local board of mental hygiene make early plans for the way in which a new mental hygiene clinic will function in that particular community. Assistance through discussions of financing mental health personnel, helping to develop local programs for mental health week, planning with the health officer and his educational supervisor for inservice training for the health department staff, and active participation in local institutes for welfare, education, and health staffs—always upon request through the health officer—are other examples of the way in which the health officer uses consultants.

One of the most interesting training programs in which the consultants of the Mental Health Section of the State Board of Health have participated has been that offered to personnel from the community mental health clinics. This workshop was arranged for the purpose of broadening the concepts of community mental health under which the psychiatrists, psychiatric social workers, and clinical psychologists in the various community mental health clinics worked. This is again another attempt to expand and improve services of the entire team which works in the area of community mental health.

A number of communities, with health officers assuming a leading role, have requested that broad inservice training programs be offered to personnel of health agencies and welfare and educational agencies as well. In this capacity the health officers have functioned largely as administrative officials who brought together the personnel necessary to make such an inservice training series possible. Superficial attempts to evaluate this part of the program would suggest that clarifying areas of interagency relationships, defining responsibilities of the different agencies and people in these agencies, discussing the way in which various activities between agencies can be integrated more effectively, and finally discussing how any of the programs could best be administered in the special community under consideration are meaningful projects to be pursued.

Another interesting activity is related to the groups within the various health departments that have been included in inservice training at the request of the health department staffs themselves. In some the public health nursing staff functioned separately as a unit. In still others the secretarial staff had its own training sessions. Decisions about the nature of the inservice training experience have been left to planning committees in each of the local health departments requesting the services. It has been interesting to note the way in which the health departments which have decided to conduct isolated inservice training experiences for various components of their staffs have finally reached the point, in a number of instances, where they asked for inservice training experiences for the entire group together.

As has been true in many states, North Carolina has recently been occupied in expanding the clinical facilities made available to its population. Inasmuch as the Mental Health Section of the State Board of Health has had since July, 1949, the responsibility for handling federal funds coming to the state, as well as funds provided for development of facilities by the state legislature, an interesting series of

meetings with individuals from various communities in which mental health centers were to be located has taken place. The health officers from these communities have usually been responsible for assuming a role of leadership in getting the community interested in developing the mental health center. As interest expands within the various communities the health officers have been responsible for calling into consultation various people who would be in a position to help them plan for the way in which the clinic is to operate in the community as well as the ways it can be financed. The Mental Health Section has allocated funds to these local communities for the purpose of getting the community mental health programs started, with the understanding that as the program sells itself to the community fewer state or federal dollars will be necessary. In this way the various communities have been able to think of their programs as becoming strictly local programs and only supported by other funds for the purpose of getting them off the ground.

In developing programs such as this the health officers with assistance from the state consultants have been very active. The nine communities in which mental health centers exist have found it difficult to decide how best to allocate the time given by the professional staff in the mental hygiene clinic to the different agencies within a community. The health officer has found it desirable to serve again as leader and coordinator so that maximum effectiveness of the program could be achieved. It has been interesting to note that in various communities the programs have developed along quite different lines, depending upon interpretation and understanding of the felt needs of the population groups in that community.

In order to staff the mental health centers in the various communities the Mental Health Section has been active in assisting with the recruitment of qualified personnel. This has involved meetings of various community groups usually including the health officer for the purpose of deciding upon such tough questions as the salaries which the various professional people are to be offered, the hours of work, whether or not fees will be charged and, last but certainly not least, where trained people are to be found to staff the various clinic centers.

One area of activity which has not become possible as yet in North Carolina is the development of a cooperative program of research in which the various local health agencies would be expected to participate. There are, however, a number of health officers in the state who have become extremely interested in working out some kind of a survey of health needs particularly in the area of mental health, but also in the area of chronic disease in which their health department staffs might participate as a small unit in a larger community project. In planning for participation in programs such as this, the health officers have recently been brought together for the purpose of deciding upon what they could be expected to do in their health programs which would contribute to the over-all understanding of the mental health problems in the state. Although pronounced interest has been expressed in this endeavor, we have yet to design and organize a specific study into which this enthusiasm could be directed.

Finally, one should perhaps mention the film library and catalogue which is maintained in the State Board of Health for the purpose of assisting local health officers in the development of programs related to mental health in their own communities. Consultants in the state office have also served as resource people for health officers who attempt to plan programs in their communities for the purpose of meeting needs such

as might be expressed by the Parent-Teachers Association or the men's or women's service clubs.

In summary, then, it might be said that the efforts being made in many parts of the country as well as in North Carolina to help the health officer in fulfilling his role in community mental health programs would consist largely of supplying him with an educational experience of his own and then doing everything possible to help him expand the program in his own local community in keeping with the needs which are observed as the result of expanded views. This includes offering inservice guidance for himself and for other members of the local health department staff. It includes offering him administrative assistance in developing local community programs, making consultation services available to the health officer and members of his staff, and developing clinical facilities in the various local communities to meet the needs as they appear in the expanding programs. This means helping the health officer find qualified personnel, as well as providing direct financial assistance for getting the programs off the ground.

An interesting sidelight, and a story in itself, is the way intensified public health efforts in mental health stimulated the conservative 1955 General Assembly to increase its mental health appropriation by 250 per cent and an even greater increase in local funds.* It also comprises efforts directed toward broadening the scope of the viewpoint brought into the mental hygiene clinic by psychiatrists, psychologists, psychiatric nurses, and psychiatric social workers to include more emphasis on community activities. To put this differently the clinical personnel are informed in general public health so that they will be able to work more effectively with the health officer, his staff, and other agencies in the community.

Efforts to involve health officers and their staffs in research into community mental health needs and the developing of community mental health programs to meet these needs are also going on and are regarded as important contributions toward the general recognition of mental health as a vital and meaningful part of a balanced local public health service.

The authors believe that an examination of the way in which programs in the state are expanding would indicate that these efforts are paying rich dividends, and that the local health officers are beginning to think of mental health as being an important and integral part of their jobs.

* A report of this activity is available on request to the North Carolina State Board of Health, Raleigh, N. C.

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Field Trials in the Evaluation of Vaccines

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This is a survey of the value of large-scale field trials of vaccines and similar prophylactics based on experience in recent years. It stresses that no one is yet certain, especially when the disease cannot be reproduced in laboratory animals, that present laboratory tests measure directly the factors responsible for protection in vaccinated persons. This is true even in pertussis in which more good vaccine trials have been made than in any other disease. The final answer to laboratory standardization of potency in the vaccinated will have to await an increase in fundamental knowledge of the mechanism of immunization.

The practical application of sound statistical methods to the testing of vaccines or similar prophylactics on a large scale in the field is comparatively recent. The idea, however, goes back at least 50 years to the first days of typhoid vaccination. In 1904 Karl Pearson [1] in a "Report on Certain Enteric Fever Inoculation Statistics" said: "Assuming that the inoculation is not more than a temporary inconvenience it would seem possible to call for volunteers, but while keeping a register of all men who volunteered only to inoculate every second volunteer. In this way any spurious effect really resulting from a correlation between immunity and caution would be got rid of." In these two sentences lies the essence of the method of making controlled studies of new vaccines in the field. The participants should be volunteers, the volunteers themselves constituting the whole population, being divided by some method free from the risk of introducing bias into two groups, a vaccinated and an unvaccinated.

In 1908, in an editorial note to a statistical paper by Maynard [2] on antityphoid inoculation, Karl Pearson expanded his earlier remarks. "Further the so-called controls" he said "cannot be considered true controls, until it is demonstrated that the men who are most anxious and particular about their own health (this explains the reference to "caution" above), the men who are most likely to be cautious and run no risk, are not the very men who will volunteer to be inoculated; thus a spurious correlation may be produced between attack and absence of inoculation. . . . Clearly what is needed is the inoculation of one half only of the volunteers, equal age incidence being maintained, if we are to have a real control. The subjection of the inoculated and uninoculated to exactly like conditions of service (is necessary). . . . Useful points . . . would be the addition of . . . the sickness record (other than of enteric) of the inoculated and uninoculated groups. . . . What is needed at present in the Army Medical Department is a trained statistician alongside the trained bacteriologist."

Sir Almroth Wright strongly disagreed with Pearson. Through the second half of 1904 scarcely a week passed without a long letter in the correspondence colums of the British Medical Journal from one or other of these two great men, one a pioneer in the study of immunology and the other a pioneer in

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the elaboration of scientific method. Wright wrote "I have long figured to myself Professor Karl Pearson as a statistical Rhadamanthus before whom all the deeds of inoculation done in the body are destined to come up for judgment. . . . I have no doubt that the mathematical principles are as unerring as they are completely beyond my intellectual ken." Pearson replied. "I should however be inclined to distrust his (Wright's) science if his letter . . . is at all a specimen of his customary logic. Any inoculation process must ultimately come before the calm tribunal of a statistical inquiry." He went on to point out that Wright had confused attack rates with mortality rates. Would Wright explain how he came to confuse the two rates? But Wright naturally found this question difficult to answer and avoided it in all his subsequent letters: he ended the exchanges by saying "I think that every commonsense man is, even without the aid of a mathematical expression, capable of forming a judgment as to whether or not a particular result can be the result of the operation of chance." Pearson was content to let matters rest, and to leave others to judge between him and Wright. Pearson was many years ahead of his contemporaries.

Between 1904 and 1908 the Anti-Typhoid Committee of the British Army Medical Department [3] carried out an extensive trial of vaccine in 24 units of the British Army in Egypt and in India. The committee compared typhoid attack rates in volunteers with those in non-volunteers and were able to show an apparent sixfold decrease in the attack rate in the vaccinated volunteers compared with the unvaccinated nonvolunteers. Despite Pearson's reiterated adverse criticisms, the results were accepted as valid, especially after Greenwood and Yule's favorable assessment in 1915,[4] and had a decisive influence on vaccination policy against enteric fever. It is appropriate at this symposium, to which Dr. Geoffery Edsall has reported the results of the first strictly controlled study of typhoid vaccine, to recall Karl Pearson's unsuccessful efforts to insure a satisfactory trial over 50 years ago. Now the situation is entirely different. In the past 20 years Pearson's suggested methods have been applied to the evaluation of pertussis vaccines, BCG, poliomyelitis, and influenza vaccines among others. In Britain the change is associated with the name of Professor A. Bradford Hill. What is perhaps not so well known, however, is that the late Professor W. W. C. Topley saw early in his immunity studies that field trials were essential. His ideas undoubtedly had a great, though indirect, influence in determining the shape of recent vaccine studies in Britain.

Detailed plans for making trials have been given by Bell,[5] Luykx,[6] Bradford Hill,[7, 8] and Fertig,[9] both in the United States and in Britain, and there is no need to repeat them here.

There are two distinct stages in bringing new vaccines into general use. In the first stage, before it is known whether or not the vaccine is likely to give substantial protection, there must be an unvaccinated control group similar in all relevant respects to the vaccinated group. The number of trials required in this stage may vary. The vaccines used in the early pertussis vaccine studies in the United Kingdom [10] gave no protection to children and the work had to be repeated with other vaccines. On the other hand, the American poliomyelitis vaccine was shown to protect children in the first trial.

As soon as a vaccine has been conclusively shown to be worth using on a large scale we reach the second stage, that of devising a sound method of standardizing the antigenic potency of each batch. Dr. Kendrick and her colleagues [11] realized this need in their

Table 1*—Medical Research Council Whooping Cough Vaccine Trials [12] Attack Rates in "Home Exposures" for Each Batch of Vaccine

Vaccine	Number of Exposures		Attack Rate Per cent	
	Vaccinated	Unvaccinated	Vaccinated	Unvaccinated
Sauer 087860	36	20	22	85
Michigan D231	41	39	7	80
Michigan A236	56	50	10	90
Glaxo 61	23	21	30	91
Glaxo 174	47	43	30	91
All vaccines	203	173	18	87

* Based on tables in the Report of the Whooping Cough Immunization Committee of the Medical Research Council,[12] by permission of the British Medical Journal.

Grand Rapids studies with pertussis vaccine and adapted the mouse intracerebral challenge test to their purpose. Vaccines made in the United States have been standardized by this test since 1948. The British Medical Research Council's Committee on Whooping Cough Immunization [12] were also faced with the problem when they found very distinct differences in potency between the five batches of vaccine used in their strictly controlled studies. The differences are shown in Table 1. Though the "home exposure"—that is the secondary familial—attack rates in the control groups were very similar, ranging only from 80 per cent to 90 per cent, the attack rates in the vaccinated ranged from under 10 per cent to 30 per cent, a three- to fourfold difference. Despite the fact that the trials were made in different areas, or in the same areas at different times, and that in some trials the number of observations was small, it was concluded that the vaccines had varied greatly in potency. Such a conclusion could not have been arrived at if the attack rates in the unvaccinated control groups included in each trial had not been alike in each area.

Because of these potency variations, for which no satisfactory explanation was found, the committee decided to study further the relation between laboratory tests and protection in children, using as their main laboratory test the mouse intracerebral challenge test. At the same time observations were made by Evans and Perkins [13] on the production of agglutinin in mice, and by Drs. Mary Adams and Naomi Datta on the production of agglutinins in vaccinated children. A report on these field and laboratory studies appeared recently.[14] Some of the difficulties in carrying out the field trials were discussed at a conference arranged by the World Health Organization.[15] In these trials all the children whose parents volunteered to have them injected were given vaccine. There were no unvaccinated control groups. Instead vaccines were compared one against another. The lack of unvaccinated controls had disadvantages but, once it had been shown that pertussis vaccines were effective under certain conditions, it was rightly decided that it was unjustifiable to withhold vaccine from children whose parents wished them to have it.

The results of both the field and the laboratory studies are shown in Figure 1, taken unaltered from the report, and in Table 2 which is based on tables in the report. The results with some of the vaccines used in the early strictly controlled series of trials [12] are included. The figure shows, for 18 vaccines, the relation between the mouse intracerebral challenge test and the attack rates in

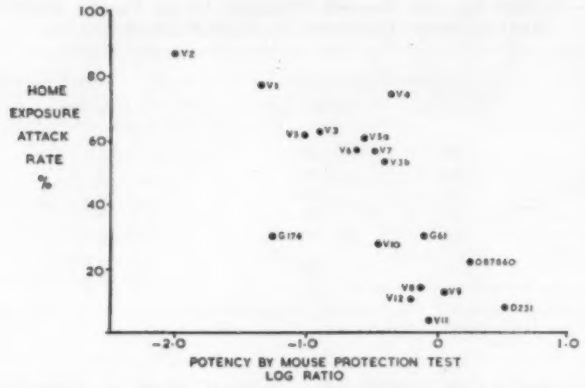

Figure 1—Figure Showing the Relationship, with 18 Pertussis Vaccines, Between Home Exposure Attack Rate in the Field and Potency as Estimated by the Mouse Protection Test.

From the Report of the Whooping Cough Immunization Committee of the Medical Research Council,[14] by permission of the British Medical Journal

vaccinated children exposed to infection in their own homes. Within the wide limits of error of the mouse test and of the field trials it is evident that vaccines which gave poor results in the mouse test—that is, those toward the left of the figure—gave high secondary home exposure attack rates in children. One exception was vaccine G 174 which was comparatively poor in the mouse and reasonably effective in children.

Table 2 shows the number of home exposures recorded and the geometric mean agglutinin titers in mice and in children for 15 of the 18 vaccines. Three vaccines were excluded from this table because no serologic studies were made with them either in children or in mice. The figures in brackets are the numbers of children whose sera were examined. As with the mouse intracerebral challenge test there is a correlation between agglutinin titers in both children and mice on the one hand and the home-exposure attack rates on the other. The evidence obtained from these studies, in which some 35,000 children were vaccinated and followed up and in which numerous observations were made in the laboratory, suggested that any of the three laboratory tests could be used in standardizing the potency of pertussis vaccine.

Work still in progress, however, is beginning to throw doubt on the value of the mouse agglutinin test. Professor L. Pillemer [16] has produced a soluble fraction of H. pertussis which he has called SPA. Field and laboratory studies with this fraction are being made in England at present. Evans and Perkins [17] already have shown that the fraction produces only a low level of agglutinin in mice, but the preliminary results of the field trial indicate that it is giving as good protection in children as the whole bacterial vaccine with which it is being compared. The mouse agglutinin test therefore, which gave results parallel to those in the field on 13 tests, may be showing completely divergent results in the 14th test. The mouse intracerebral test—after field and laboratory trials with 18 batches of vaccine—is still giving results which run parallel to those obtained in the field.

Table 2*—Medical Research Council Whooping Cough Vaccine Trials [14] Relation Between Attack Rates in "Home Exposures" and Agglutinin Production in Mice and Children

Vaccine	Number of Exposures	Number of Cases	Attack Rate Per cent	Geometric Mean Agglutinin Titer	
				in Mice	in Children
V11	52	2	4	1,259	291 (60)
D231	41	3	7	1,125	nt
V12	104	9	9	1,990	279 (126)
V9	132	17	13	2,820	nt
V8	428	59	14	708	211 (267)
V10	85	25	29	644	208 (81)
V3b	65	35	54	nt	6 (45)
V7	16	9	56	16	5 (9)
V6	21	12	57	49	5 (10)
V3	109	66	61	13	4 (52)
V5	18	11	61	14	4 (9)
V5a	51	31	61	nt	12 (30)
V4	72	53	74	17	7 (39)
V1	93	73	78	15	4 (55)
V2	102	89	87	10	4 (62)

Figures in parentheses are the number of children from whom serum was examined.
n.t. = not tested.

* Based on tables in the Report of the Whooping Cough Immunization Committee of the Medical Research Council,[14] by permission of the British Medical Journal.

Agglutinin production in children, which has been measured in many trials also gives results parallel to those in the field.

Pertussis is one of the commonest of the specific infectious diseases of childhood. The average annual number of notified cases over the past 10 years in England and Wales—where the total population is about 45 million—was 121,952. With a disease as prevalent as pertussis it has been possible to show, after more than 10 years of field and laboratory work, that two laboratory tests are of value in assessing the potency of batches of vaccine; but the effort required to obtain the results has been immense. If the mouse agglutinin test fails after 13 tests, may not the other tests fail also in time? The small number of observations by Rankin and Fisher [18] on pertussis hemagglutinin vaccine (HAPA), if confirmed, may already be evidence that the intracerebral mouse test does not always measure protective power in children. The difficulty of laboratory standardization is that present knowledge of immunology does not allow us to be certain that serologic tests or tests on laboratory animals measure directly the factor or factors necessary for protection in man. In these circumstances the best that can be done is to test as many batches of vaccine as possible, both in the laboratory and in the field, and choose for standardization purposes a laboratory test which shows good correlation with the field results. But the number of field studies that can be made depends, among other things, on the incidence of the disease. In pertussis it has been possible to make a reasonable number of studies and the results, though not amounting to final proof that the intracerebral mouse test measures protective potency in man, may be accepted for the present.

It has been demonstrated that typhoid vaccine was of value under the conditions of the trial in Osijek. Methods of

laboratory assay of the protective potency of typhoid vaccines in man are admitted to be unsatisfactory and the need for comparison between effectiveness of vaccines in the field and the results of laboratory tests is recognized. But the incidence of typhoid fever is low in most parts of the world where extensive trials could be made with competence, and there is little chance of being able to make more than one or two further trials. These further studies should be made, but it would not be wise to take the information gained from them as conclusive proof that any particular laboratory test is a direct measure of protective potency in man.

Paralytic poliomyelitis, like typhoid fever, has a low incidence. It will not be possible to make many comparisons between laboratory tests and protection in human beings with poliomyelitis vaccines. Some countries may still be able to repeat with their own vaccines a first stage trial similar to that made in the United States, but even this is doubtful, partly because of the capricious incidence of the disease and partly because ethical considerations will demand that vaccine be made freely available as soon as supplies are adequate. Poliomyelitis differs from typhoid fever in that the results of animal protection tests and serologic tests are accepted by most immunologists as satisfactory evidence of protective potency in man. The need for numerous comparisons between field and laboratory results with poliomyelitis vaccines is, therefore, not so great as it is with typhoid and pertussis vaccines.

In summary it may be said that the field trial has an all-important place in showing whether a new vaccine is likely to be of value. But there are few diseases in which a sufficient number of parallel field and laboratory studies can be made to prove conclusively the validity for man of laboratory tests for antigenic potency. The final solution of this particular problem lies in increasing the stock of fundamental knowledge on immunology and for this the field worker must look to his laboratory colleagues. In the meantime he must rely on whatever methods of laboratory assay are available. With some vaccines, such as poliomyelitis vaccine where the disease can be reproduced in animals, he can be reasonably confident that the laboratory test is an indicator of protective potency in man. With others, such as pertussis and typhoid vaccines, where the disease cannot be reproduced in the usual laboratory animals, he would do well to keep an open mind.

So far what I have said has centered around large-scale trials, trials which have necessitated the making of observations in many different areas or by many different groups of persons. What is the place of the health officer in trials of vaccines? The answer depends to some extent on how common the disease is. In poliomyelitis it was necessary to bring under observation 400,000 children in the placebo trials in order to observe 148 paralytic cases of the disease. A poliomyelitis vaccine trial therefore requires at least one large country to get even a minimum of sound information. The health officer and his staff in such studies are in a position to provide information to some central organization and have to find their satisfaction in knowing that, in collaboration with their fellow health officers, they have sent up information the accuracy of which they have taken every care to check by close personal observation or supervision. In the poliomyelitis trial a few slipshod investigators could easily have reduced the number or quality of the observations far enough to make the whole study worthless. In that study every case counted, but few field studies need to be so widely flung as those with poliomyelitis vaccine. When a measles vaccine is produced it should be possible to test it on comparatively small groups, for in a susceptible group

of young children—for example in a day-nursery—the attack rate of measles can be very high.

But in the main, the role of the health officer is to be a constant and unwearied observer that vaccines continue to be of good potency and that they are not provoking unexpected and unpleasant sequelae.

Jaffe [19] has clearly demonstrated, by observing secondary familial attack rates, that some pertussis vaccines used in the United States about 1953 were of poor potency. Geffen,[20] McCloskey,[21] Korns,[22] and others demonstrated that there was at least a strong suspicion that poliomyelitis was sometimes causally related to diphtheria or pertussis vaccines. The health officer is best placed to observe the unexpected. By making accurate personal observations and by keeping good records he is more likely than any other epidemiologist to make original contributions to the science of preventive medicine. Often the number of observations he will be able to make in his area will be sufficient only to point to a problem which will require an extensive research program for its elucidation. But the important observation is the preliminary one, and in preventive medicine the health officer is in the best position to make it.

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A Discussion of the Concepts of Incidence and Prevalence as Related to Epidemiologic Studies of Mental Disorders

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We need to know much more about the epidemiology of mental disorders. The research needed will prove expensive and difficult since it will depend on long observation and will involve several disciplines, but it is the way we must take to advance our knowledge of the incidence, duration and prevalence of mental diseases.

This paper gives an opportunity to acquaint epidemiologists with some of the characteristics of morbidity data on the mentally ill and some of the challenging research problems that this field presents. Because of the complex nature of the problem, epidemiologic research on the mental disorders is bringing into the public health field professional personnel from such disciplines as psychiatry, psychology, sociology, anthropology, and psychiatric social work. For the most part, persons trained in these professions have not been exposed to the philosophy underlying the epidemiologic approach to the study of disease and to the statistical methods used in such studies. This paper, therefore, will also give an opportunity to provide these professionals with some background material on two basic morbidity indexes used in studying the occurrence of disease in population groups.

Definitions

Incidence is defined as the number of new cases of a disease occurring within a specified period of time. "New case" must be carefully defined as, for example, the first or initial attack of a disease during an individual's lifetime. The incidence rate is computed by taking the ratio of the number of new cases (as defined) in the specified interval to the appropriate population exposed to risk. This rate may be made specific for a variety of factors, such as age, sex, marital status, geographic area, and socioeconomic status.

Prevalence is defined as the number of cases of a disease present in a population group as of a specified interval of time, i.e., it is the number of cases existing at the start of an interval plus the new cases developing during the interval. As Dorn [1] points out, "the length of the interval of observation must always be specified if a prevalence rate is to be correctly interpreted, for we may speak of the number of persons who are sick at any time during a given day, week, month or other arbitrary interval." The characteristics of individuals who are to be counted as a case must be carefully defined, as for example all persons who have "active" disease within the interval of study. The prevalence rate is computed by taking

the ratio of the number of cases in the specified interval to the number of people in the appropriate population group for which the rate is being determined. The rates may be made specific for age, sex, geographic area, socioeconomic status, etc.

Usually the prevalence rate can be determined more easily than the incidence rate since it can be estimated by a single case-finding survey of a population group. This is particularly true for the chronic diseases, but this should not obscure the fact that the incidence rate is the fundamental epidemiologic ratio. The fundamental nature of this rate has been emphasized by Dorn,[1] Doull,[2] Sartwell and Merrell,[3] and others. In discussing infectious diseases Doull states, "In general terms and assuming no restrictions on exposure, incidence is dependent upon the balance which exists between resistance of the population and pathogenicity of the microorganism. This balance may be called the force of morbidity." The analogy between this concept and concepts that have been proposed with respect to the incidence of mental disorder in the population is apparent. Incidence of mental disorder would seem to be dependent upon the balance which exists between resistance of the population and those forces and stresses—biologic, cultural, psychologic —that produce mental disorder. Doull further states, ". . . prevalence is more complex. It is the resultant of the force of morbidity and those factors which determine whether the interval between onset and termination shall be long or short, whether a disease shall be acute or chronic."

In more formal terms, incidence measures the rate at which new cases are added to the population of sick persons and—in conjunction with the decrement rate, i.e., the rate at which the disease is "arrested," "cured," or at which affected individuals are removed from the population by death—determines the size and composition of the sick population. Thus, the prevalence rate of a disease is a function of the incidence rate and the duration of the disease.

Hypothetical Examples

These concepts may be illustrated by three hypothetical examples dealing with the variables incidence, duration, and prevalence. These examples show the effect of different assumptions regarding duration of disease on the resulting prevalence rate in a stationary population with a constant annual incidence rate of a specified disease.

Let us assume that there are three communities each with a stationary population of 100,000 people that have always been free of mental disorder. Suddenly, in 1940, 1,000 individuals become psychotic for the first time in communities A and B and 2,000 in community C. Further, to simply the problem, let us also assume that these people all become psychotic on January 1, that they are immediately hospitalized on that day and that there is only a single type of mental disorder involved. Thereafter, on January 1 of every year, 1,000 new cases of the same disorder always appear in A and B and 2,000 in C. Let us also assume that the sick individuals are released from the hospital at some specified rate and that release from the hospital is equivalent to cure of the disease, i.e., the interval between date of admission and date of release is equivalent to duration of the disease. Table 1 shows the prevalence in each

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Table 1—Illustration of Ways Three Hypothetical Prevalence Situations Develop in Three Different Communities Under Various Assumptions of Incidence and Duration of Disease

Community A. Assumptions: 1,000 new cases annually, each of which occurs on January 1 of specified year; 100 patients annually are cured in each cohort of such new cases. The prevalence count will stabilize at 5,500 cases on January 1, 1949.

Cohort of Year	Patients in Hospital on January 1 of Specified Year										
	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
1940	1000	900	800	700	600	500	400	300	200	100	0
1941		1000	900	800	700	600	500	400	300	200	100
1942			1000	900	800	700	600	500	400	300	200
1943				1000	900	800	700	600	500	400	300
1944					1000	900	800	700	600	500	400
1945						1000	900	800	700	600	500
1946							1000	900	800	700	600
1947								1000	900	800	700
1948									1000	900	800
1949										1000	900
1950											1000
Total	1000	1900	2700	3400	4000	4500	4900	5200	5400	5500	5500

Community B. Assumptions: 1,000 new cases annually, each of which occurs on January 1 of specified year; 10% of those ill at the beginning of each year are cured during that year. The prevalence count will stabilize at 10,000 cases on January 1, 2007.

Cohort of Year	Patients in Hospital on January 1 of Specified Year										
	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
1940	1000	900	810	729	656	590	531	478	430	387	348
1941		1000	900	810	729	656	590	531	478	430	387
1942			1000	900	810	729	656	590	531	478	430
1943				1000	900	810	729	656	590	531	478
1944					1000	900	810	729	656	590	531
1945						1000	900	810	729	656	590
1946							1000	900	810	729	656
1947								1000	900	810	729
1948									1000	900	810
1949										1000	900
1950											1000
Total	1000	1900	2710	3439	4095	4685	5216	5694	6124	6511	6859

Community C. Assumptions: 2,000 new cases annually, each of which occurs on January 1 of specified year; 40% of those ill at the beginning of each year are cured during that year. The prevalence count will stabilize at 5,000 cases on January 1, 1956.

Cohort of Year	Patients in Hospital on January 1 of Specified Year										
	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
1940	2000	1200	720	432	259	155	93	56	34	20	12
1941		2000	1200	720	432	259	155	93	56	34	20
1942			2000	1200	720	432	259	155	93	56	34
1943				2000	1200	720	432	259	155	93	56
1944					2000	1200	720	432	259	155	93
1945						2000	1200	720	432	259	155
1946							2000	1200	720	432	259
1947								2000	1200	720	432
1948									2000	1200	720
1949										2000	1200
1950											2000
Total	2000	3200	3920	4352	4611	4766	4859	4915	4949	4969	4981

community on January 1 of each year under the following assumptions with respect to the duration of illness in each cohort * of new cases:

Assumption 1, Operating in Community A: In each cohort of 1,000 new cases 100 people annually are cured.

Assumption 2, Operating in Community B: In each cohort of 1,000 new cases 10 per cent of those still ill at the beginning of each year are cured during the following year.

Assumption 3, Operating in Community C: In each cohort of 2,000 new cases, 40 per cent of those still ill at the beginning of each year are cured during the following year.

Although the annual incidence, that is, the number of people developing a mental disorder for the first time in each year is the same in community A and B, the prevalence rates on January 1 of each year differ considerably after the first two years. For example, on January 1, 1950, in community A, the prevalence becomes stationary at 5,500 patients, a prevalence rate of 5,500 per 100,000 or 5.5 per cent. On the other hand, in the community B, the prevalence increased steadily to 6,859 or 6.9 per cent on the same date. It can be shown that this rate will stabilize at 10,000 per 100,000 or 10 per cent at about the year 2007. In community C, where the annual incidence rate is 2,000 per 100,000 or 2 per cent, twice the rate in the previous examples, the prevalence reaches 4,981 cases per 100,000 population on January 1, 1950. In this population prevalence will eventually become less than in the other two examples, stabilizing at 5,000 per 100,000 or 5 per cent at about the year 1956.

These examples illustrate that although the prevalence of a disease differs among communities, the inference cannot be drawn that the community with the highest prevalence also has the highest incidence. Indeed, the community with the highest incidence had the lowest prevalence. Since the prevalence rate is a function of the annual incidence and the duration of the illness, it should be clear that interpretation of differences in prevalence between communities is dependent on knowledge of these two factors.

Not only do the above considerations explain how differences in prevalence rates for a single disease develop between communities, they also explain how differences develop among prevalence rates for several diseases within the same community. Thus, if disease A has a higher prevalence rate than disease B, the difference can be accounted for as follows: (1) higher incidence for disease A associated with longer, equal or even shorter duration for disease A than disease B; or (2) equal incidence for disease A and B associated with longer duration of disease A than disease B; or (3) lower incidence in disease A with disproportionately longer duration for disease A than for disease B.

Illustrations

The above principles may be illustrated by a consideration of indexes that have been used to measure the incidence and prevalence of mental disorders requiring admission to hospitals for the prolonged care and treatment of mental disorder. An index of the incidence of these mental disorders is the first admission rate, defined as the number of persons admitted for the first time to prolonged care mental hospitals per 100,000 population. An index of prevalence of these disorders is the number of persons actually resident in the hospitals for prolonged care at the end of the year per 100,000 population. These indexes may be made specific for age, sex, etc.

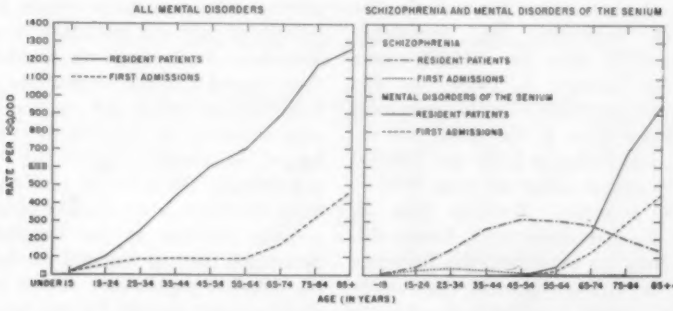
Both indexes have limitations discussed fully elsewhere.[4-6] To illustrate, the date of first admission to a mental hospital is not necessarily coincident

* A cohort is a group of persons, each of whom has some common characteristic.

with the date of initial attack of mental disorder. Indeed, as more community treatment facilities develop, as the number of psychiatrists engaged in private practice increases and as treatment methods become available that can be used by general practitioners for maintaining persons with mental disorders in the community (such as the tranquilizing drugs), considerable time may elapse between date of onset of disease and the date it may finally be found necessary to commit an individual to a mental hospital. Also, the number of patients resident in these hospitals on any one day is not a complete count of the number of people in a community who have a psychiatric disability. Nevertheless, there are certain types of data available on hospitalized psychotics which are not available on the non-hospitalized population. For example, the time interval elapsing between date the patient is admitted to the hospital and date the patient is returned to the community or dies in the hospital gives one measure of duration of disability associated with certain hospitalized psychiatric disorders and makes it possible to illustrate how differential duration of hospitalization produces differences between resident patient and first admission rates.

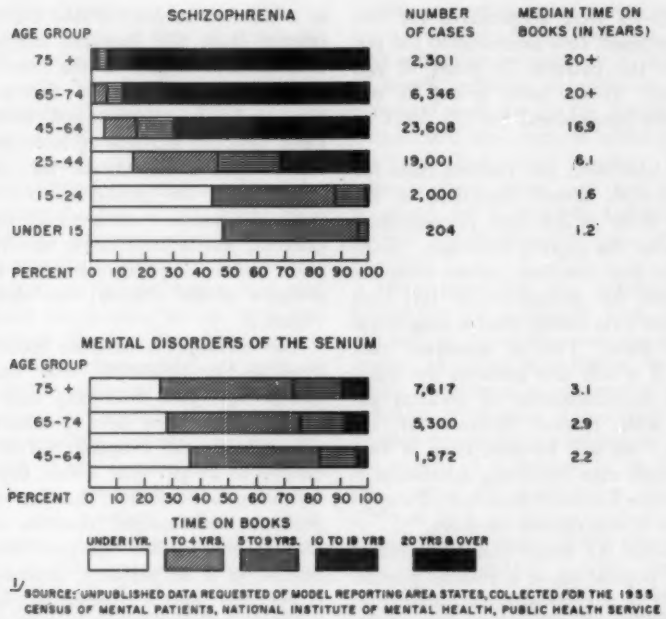
Let us now consider differences between first admission and resident patient rates for all mental disorders combined, schizophrenia and mental diseases of the senium (cerebral arteriosclerotic and senile psychoses combined) (Figure 1).

The resident patient curve for all disorders increases continuously with age from 14.1 per 100,000 in the age group under 15 years of age to 1,272 in the age group 85 years and over. The first admission curve is at a considerably lower level and has a different form. Thus, the curve rises from a low of 10 per 100,000 under 15 years of age to about 84 per 100,000 in the age group 25–34 years, stays at about a level of 90 per 100,000 in the age groups 35–44, 45–54, and 55–64 years and then makes a rapid ascent to a maximum of 467 in the age group 85 years and over. Because of the large number of disorders involved and of the variations in the age at time of admission for patients with these disorders (see for example reference 5, p. 4), the total resident patient rate is difficult to interpret. It is instructive to examine the differences



[1] Source: Patients in Mental Institutions, 1952, Part V (in Preparation), National Institute of Mental Health, Public Health Service.

Figure 1—Age-Specific First Admission and Resident Patient Rates per 100,000 Civilian Population, State Hospitals for Mental Disease, All Mental Disorders and Selected Mental Disorders, Both Sexes, United States, 1952.[1]



1/ SOURCE: UNPUBLISHED DATA REQUESTED OF MODEL REPORTING AREA STATES, COLLECTED FOR THE 1955 CENSUS OF MENTAL PATIENTS, NATIONAL INSTITUTE OF MENTAL HEALTH, PUBLIC HEALTH SERVICE

Figure 2—Per cent Distribution by Time on Books and Median Time on Books of Patients Resident in New York State Civil Hospitals for Mental Disease, Both Sexes by Age and Selected Diagnosis, March 31, 1955.[1]

between resident patient and first admission rates for two important groups of patients, the schizophrenics and patients with mental diseases of the senium.

The first admission rate for schizophrenics rises from a low of 2 per 100,000 in the age group under 15 years to a maximum of 41 in the age group 25–34 years and declines steadily with advancing age. The resident patient rate rises steadily to a peak of 318 per 100,000 in the age group 45–54 years, decreases slowly to about 285 in the age group 65–74 years, and then to 140 in the age group 85 years and over. The high resident patient rate in the older age groups is a resultant of the accumulation of cases in the hospital. That is, the resident schizophrenics in the age groups 45 and over consist primarily of cases who have aged in the hospital rather than of new admissions in these age groups. Evidence of this fact can be obtained from Figure 2 which presents the distribution of resident schizophrenics in the New York State civil hospitals on March 31, 1955, by age and duration of hospitalization as measured by the interval between date of current admission and March 31, 1955.* The proportion of cases hospitalized for long periods of time increases markedly with advancing age of patient. Thus, 44 per cent of the pa-

* This interval actually represents length of time patient has been on the books of the hospital for the current admission. Although data similar to that reported by New York State are available for the patients hospitalized in 16 of the 17 Model Reporting Area States, the machine tabulations have as yet not been completed for the combined experience.

tients 15–24 were hospitalized for less than one year. This decreases to 0.4 per cent for the patients 75 years of age and over. In the latter group 85 per cent were hospitalized for 20 years or more.

First admission and resident rates for patients with mental disorders of the senium show a different phenomenon. Both rates rise rapidly with age. However, the high resident patient rates are accounted for primarily by the high admission rate rather than a long duration of stay. This is apparent from Figure 2 which also presents the duration of hospitalization of resident patients with mental diseases of the senium. As will be seen later, a very high death rate following admission is responsible for short duration of stay of patients in this disease category.

It should be noted that the resident patient population is a residue population. It is a heterogeneous mixture of the residues of various cohorts of patients admitted over long periods of time—indeed from the date the hospital opened to the present day—and depleted through release and death at differential rates specific for age, sex, diagnosis and a variety of other factors that have influenced the movement of patients during the history of the hospital.

More direct evidence on differences in duration of hospitalization and the way such differentials account for differences between distribution of diagnostic categories in first admissions and resident patients can be obtained only from studies which follow groups of first admission to determine what proportion are still in the hospital, out of the hospital, or dead within specified periods of time following admission. An example of such a study is that done on first admissions to Warren State Hospital during the period 1916–1950.[5] Cohorts of patients specific for age, sex, and diagnosis were followed from date of admission to date of first significant release from the hospital, defined as date of first release to the community on direct discharge or convalescent care, or death in the hospital, whichever came first. An example of the retention, release and death curves for patients admitted in the period 1936–1945 in five diagnostic categories (schizophrenia, manic depressive, involutional and syphilitic psychoses and mental diseases of the senium) are shown in Figure 3.

The schizophrenics have the highest retention probabilities. For example, within one year following admission, 49 per cent have been retained continuously in the hospital and this decreases to 29 per cent within five years following admission. The per cent of patients with mental diseases of the senium retained for one year following admission is 31 per cent, decreasing to 8 per cent within five years after admission. The differences in retention probabilities are a reflection of the differential rates of separation. The separation probabilities are highest for patients with manic depressive psychosis and mental diseases of the senium and lowest among the schizophrenics. However, in the manic depressive category a very high proportion of the separations are released alive and a very small proportion die in the hospital, whereas for patients with diseases of the senium the situation is reversed. Although the schizophrenics have a relatively high release rate, with 45 per cent released within one year following admission and 61 per cent released within five years, their total separation rate is lowest because of the relatively low death rate.

If we compare the percentage distribution of diagnoses at time of admission among the first admissions in the five diagnostic categories shown in Figure 3 with the corresponding distribution for those retained continuously for five years we find some striking differences.

The schizophrenics constitute 39 per cent of this group at time of admission and 65 per cent of those hospitalized continuously for the five years, while for the mental diseases of the senium the corresponding percentages are 31 and 14 per cent, respectively.

Similar differences can be shown by considering the fate of patients in relation to age at first admission. The youngest patients have the highest release rates and lowest death rates and the oldest the lowest release rates and the highest death rates (Figure 4). Variations in release and death rates by age and diagnosis are rather interesting but will not be dwelled upon here.[6]

The preceding is only a partial explanation of the ways these differences occur in the composition of first admission and resident patient populations, since, following release to the community, some patients will be readmitted. Indeed, the composition of a mental hospital population is a resultant of medical, social, environmental, economic, and administrative factors which have produced current and past rates of first admission, current and past rates at which patients are released to the community or die in the hospital, and current and past rates at which patients are readmitted to the hospital. Knowledge of these rates over the years is necessary for a complete understanding of the population dynamics of these hospitals.

Time trends in the incidence and prevalence of a disease may also be affected by prevention and control programs. A major objective of the public health movement is to prevent the occurrence of disease, if possible, and to develop treatment procedures to shorten the course of a disease, or to lengthen the course by prolonging life. The effect of such programs is illustrated by considering changes in the first admission and resident patient rates for syphilitic psychotics in the state hospitals of the nation in the period from 1939 to 1952 (Table 2). There has been

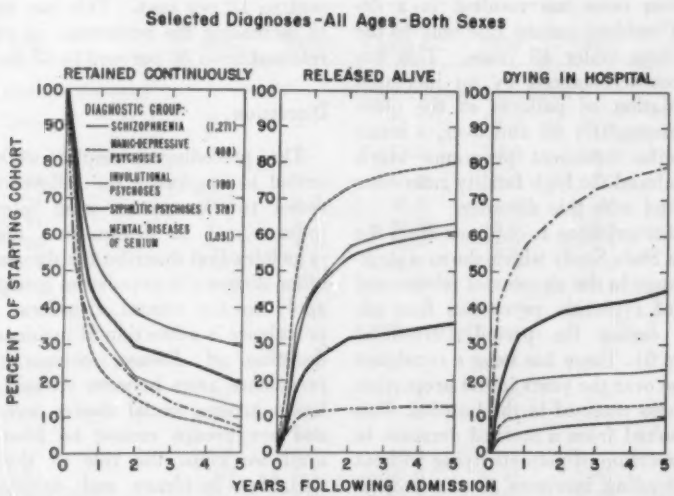


Figure 3—Per cent of First Admissions Retained in Hospital, Released Alive and Dead Within Specified Periods Following Admission to Warren State Hospital, Warren, Pa.: 1936–1945. Selected Diagnoses—All Ages—Both Sexes.

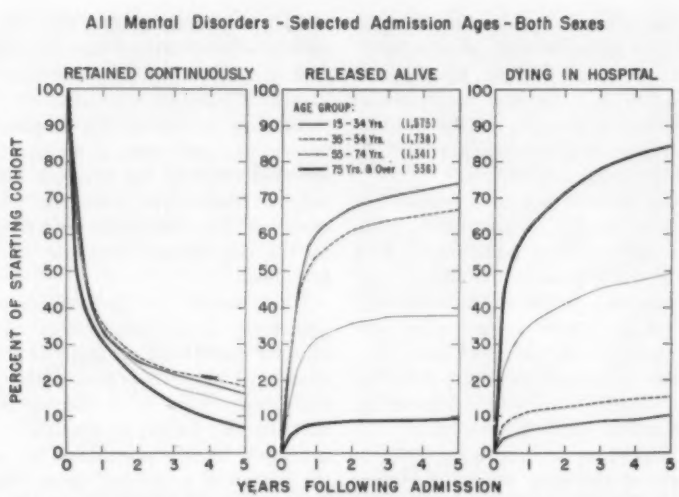

All Mental Disorders - Selected Admission Ages - Both Sexes
RETAINED CONTINUOUSLY
RELEASED ALIVE
DYING IN HOSPITAL
PERCENT OF STARTING COHORT
AGE GROUP:
15 - 34 Yrs. (1,875)
35 - 54 Yrs. (1,738)
55 - 74 Yrs. (1,341)
75 Yrs. & Over (538)
YEARS FOLLOWING ADMISSION

Figure 4—Per cent of First Admissions Retained in Hospital, Released Alive and Dead Within Specified Periods Following Admission to Warren State Hospital, Warren, Pa.: 1936–1945. All Mental Disorders—Selected Admission Ages—Both Sexes.

a slight increase in the total resident patient rate during a period when the total first admission rate has decreased by 73 per cent. The decrease in first admission rates has resulted in a decreased resident patient rate only in the age groups under 45 years. This has been counterbalanced by an increased accumulation of patients at the older ages, particularly 65 and over, a result of specific treatment programs which have reduced the high fatality rates once associated with this disorder.

Further evidence is obtained from the Warren State Study which shows a striking change in the chances of release and death of syphilitic psychotics first admitted during the period 1916–1950 (Figure 5). There has been a consistent increase over the years in the proportion of patients retained in the hospital. This has resulted from a marked decrease in the proportion of patients dying without corresponding increases in the proportion of patients released. If the 1916–1925 cohort is compared with the 1946–1950 cohort within one year after admission, the percentage of patients released has increased from 14 per cent to 39 per cent and the percentage of patients dying has dropped from 56 per cent to 18 per cent. This has resulted in increasing the percentage of patients retained from 30 per cent to 43 per cent.

Discussion

The preceding examples were presented to emphasize the differences between two commonly used morbidity indexes and to demonstrate that the principles that describe the dynamics of other illnesses in population groups also apply to the mental disorders. Since prevalence is a function of incidence and duration of disease, comparison of prevalence rates between various population groups, social classes, age, race, and sex groups cannot be interpreted until we know the role of the basic variables—incidence and duration—in producing a given prevalence situation.

I do not wish to leave the impression that the prevalence rate is not a useful

index. As Sartwell and Merrell [3] have said: "The kind of morbidity index which is chosen in studying a disease will depend upon the kind of information desired; thus, the medical care administrator will at times simply be interested in the prevalence of severe cases of a disease in order to estimate the number of beds needed, or the health officer may wish to know what population group will yield the most cases if a screening test is applied. The epidemiologist, however, is constantly seeking as complete a picture as possible of the distribution and course of the disease in specific segments of the population in order to arrive at an understanding of its etiology, pathogenesis, and control."

The purpose of epidemiologic investigations of the mental disorders is to discover associations that may lead to the determination of factors—biologic, psychologic, familial, socioenvironmental—that cause these disorders, and which are responsible for the disability they produce. These associations are determined by studies of the rate at which disease develops in various population groups and in various segments of these populations, and the differential duration of disease and mortality in affected individuals. The proof of etiologic relationships must then be sought through more extensive clinical or experimental investigations.

If we are to learn more about the role played by socioenvironmental variables in the production of mental disorder then we must extend our knowledge of the incidence of these disorders in various population groups. Similarly, if we are to understand the influence of these variables on the course of specific men-

Table 2—Age-Specific First Admission Rates and Resident Patient Rates for Syphilitic Psychoses, United States, 1939 and 1952

Age	First Admission			Resident Patient		
	1939	1952	Per cent Change	1939	1952	Per cent Change
	Rates per 100,000 Population *					
Total (15 years and over)						
Crude	8.0	2.1	−73.8	25.9	26.0	+ 0.4
Age Adjusted †	8.6	2.3	−73.3	28.0	28.7	+ 2.5
15–24	1.0	0.4	−60.0	2.2	1.8	−18.2
25–34	6.7	0.8	−88.1	14.2	5.4	−62.0
35–44	14.1	2.7	−80.9	41.2	25.4	−38.3
45–54	13.1	4.4	−66.4	51.2	64.1	+25.2
55–64	11.0	4.1	−62.7	45.3	57.6	+27.2
65 and over	4.7	2.5	−46.8	18.7	37.1	+98.4
	Number of Patients					
Total (15 years and over)	7,781	2,532	−67.5	25,276	31,484	+24.6
15–24	231	71	−69.3	533	346	−35.1
25–34	1,409	183	−87.0	3,013	1,259	−58.2
35–44	2,567	594	−76.9	7,485	5,573	−25.5
45–54	2,010	786	−60.9	7,857	11,492	+46.3
55–64	1,150	568	−50.6	4,753	7,997	+68.3
65 and over	414	330	−20.3	1,635	4,817	+194.6

* Rates per 100,000 population as of July 1939 from series P45, No. 5 and 1952 from series P25 No. 121, Current Population Reports, Population Estimates, Bureau of the Census, U. S. Department of Commerce, Washington 25, D. C.
† Adjusted to age distribution of population of the United States as of July 1, 1952. Series P25 No. 121.

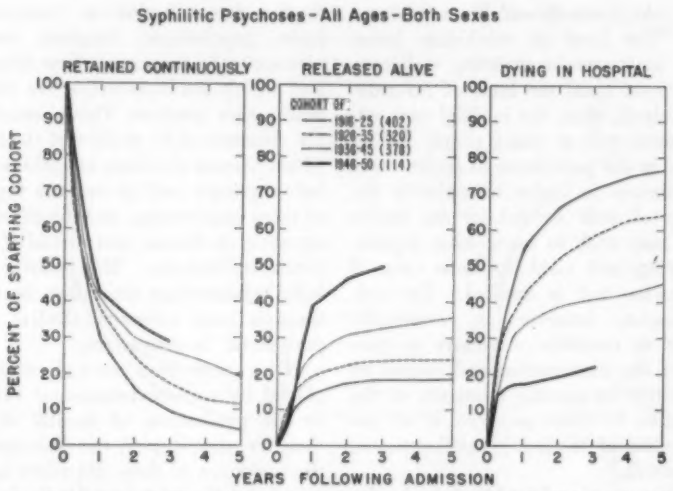


Figure 5—Per cent of First Admissions Retained in Hospital, Released Alive and Dead Within Specified Periods Following Admission to Warren State Hospital, Warren, Pa.: 1916–1950. Syphilitic Psychoses—All Ages—Both Sexes.

tal disorders, then we must also study variations in remission, relapse, and mortality rates. Studies of prevalence alone leave these basic questions unanswered.

These points may be illustrated by a consideration of two studies of mental disorders carried out in recent years which have investigated the relationship between social stratification, culture and mental disorders in which the morbidity indexes have been determined from prevalence type data. The first of these projects is a study of social structure and psychiatric disorders carried out in New Haven, Conn., by Hollingshead, Redlich, and associates,[7,8] and the second, a study of mental disorders in the Hutterite population of the United States and Canada by Eaton and Weil.[9]

The New Haven project was designed "to discover whether a relationship does or does not exist between the class system of our society and mental illnesses." Five hypotheses were being tested of which the first two are pertinent for this discussion: (1) "the prevalence of treated psychiatric disorders is related significantly to an individual's position in the class structure of his society"; (2) "the types of psychiatric disorders are connected significantly to an individual's position in the status structure."

The basic data used to test these hypotheses were derived from a psychiatric census in the New Haven area. There were 1,963 persons found to be under treatment on December 1, 1950: 66.8 per cent were in a state hospital; 4.2 per cent in a VA hospital; 1.9 per cent in a private hospital; 8.1 per cent under treatment in a clinic; and 19.0 per cent under care of private psychiatrists. The persons in the census were further subclassified into five social classes on the basis of residence, occupation, and education. Class I consists of individuals in the highest socioeconomic position and Class V in the lowest. Comparison of the distribution of persons under psychiatric treatment by social class with a similar distribution for a sample of the "normal" popu-

lation demonstrated a strong inverse relationship between social class and the prevalence of treated mental disorders. There were striking differences between the proportion under various types of treatment. To use the extremes, in Classes I and II combined, 63 per cent were under care of private psychiatrists and 14 per cent in a state hospital, whereas in Class V the corresponding percentages were 3 and 85, respectively. The differences were statistically significant.

A point to be kept in mind in interpreting indexes of the type used in this study is that the proportion of the population with a particular type of mental disorder who are under a specified type of treatment on any one day is a function of the rate at which affected individuals come under the type of treatment and the length of time the affected individuals stay under such treatment. Our previous data on differences between diagnostic composition of first admissions to mental hospitals and resident patients may be used to illustrate this point. Although the first admission rate (i.e., the rate of coming under hospital treatment) for one disorder is high, if the separation rate is also high (i.e., average duration stay in the hospital is short), patients with this disorder may constitute a relatively small proportion of the population under treatment on any one day. On the other hand, a disorder with a relatively low admission rate may constitute a high proportion of patients under treatment because of a relatively long duration of stay. Thus, the fact that an inverse relationship exists between social class and prevalence of treated mental disorder does not mean necessarily that a similar relationship exists between the rate at which people enter into treatment and social class. Nor does it mean necessarily that a similar relationship exists between social class and the rate at which the mental disorder develops (incidence). The number of people with a particular mental disorder who are under a specific type of treatment on a given day is a resultant not only of the incidence of that disorder but also of the availability of various types of psychiatric treatment facilities and a series of medical, social, economic, environmental, personal, familial, educational, legal and administrative factors which determine who receive treatment in the various facilities and how long they stay under such treatment. Thus, much additional research is needed to determine how much of the observed difference in prevalence of treated mental disorder between various classes of the population is due to differences in (a) incidence (the rate at which the disorder occurs), (b) the rate at which individuals come under treatment, and (c) how long they stay under the care of these treatment facilities.

The Hutterite study investigated the occurrence of mental disorders in a religious sect residing largely in North Dakota, Montana, and Manitoba. This group was reputed to be one in which mental illness was practically nonexistent. A team consisting of social scientists and a psychiatrist surveyed a large number of Hutterite villages to secure data on all known cases of mental disorder and to examine persons reported as possible cases of mental disorder. This study failed to substantiate the impression that Hutterites were almost free of severe mental illness. The morbidity index used in the analysis of the data was one termed the lifetime prevalence rate, defined as the ratio of all active and recovered cases of mental disorders alive at the end of the enumeration period to the total population. Thus, in a population of 8,542 Hutterites, enumerated as of August 31, 1951, 199 persons (23.3 per 1,000 population) were found to have been affected by a mental disorder at some time during their lifetime, and were still

living on the stated date. Of the cases found, 53 were cases of psychosis, yielding a lifetime prevalence rate of 6.2 per 1,000 for these disorders. These rates are also presented specific for age, sex, and type of mental disorder.

In effect, this index is a determination of the proportion of a population alive on a given date who have a history of an attack of mental disorder. It should be apparent that this index is an inappropriate one to use if the focus of the research is to determine the influence of culture on the rate at which mental disorder occurs. The proportion of a population surviving to a given date with a history of a disease is a function of the incidence rate, the mortality of persons who have ever had the disease and the mortality of the nonaffected population. The fact that lifetime prevalence would differ between two or more cultural groups does not mean that incidence differs. Indeed, incidence may be equal while the duration of life following attack by the illness differs. For example, there may be two primitive cultures A and B with an equal rate of incidence of mental disorder. Culture A's attitude toward the mentally ill is a protective one and everything possible is done to prolong their lives, whereas culture B's attitude is just the opposite. Thus, in A the interval between onset of illness and death would be considerably longer than in B and as a result lifetime prevalence in A would be higher than in B.

Mortality is a factor that can not be overlooked in epidemiologic studies of mental disorder. Although little is known about mortality in psychiatric patients who have never been hospitalized, or in those who have been released from a hospital, it is known that mortality rates experienced by mental hospital patients exceed greatly mortality rates of persons of comparable age and sex in the general population.[10] There have also been striking time trends in mortality among patients who were under 65 years of age at time of admission. To illustrate, consider the changes in mortality experienced by patients admitted to Warren State Hospital in the

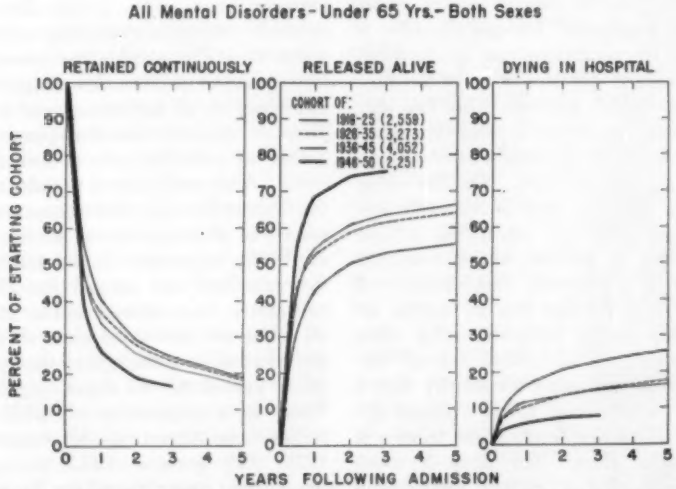


Figure 6—Per cent of First Admissions Retained in Hospital, Released Alive and Dead Within Specified Periods Following Admission to Warren State Hospital, Warren, Pa.: 1916–1950. All Mental Disorders—Under 65 Years—Both Sexes.

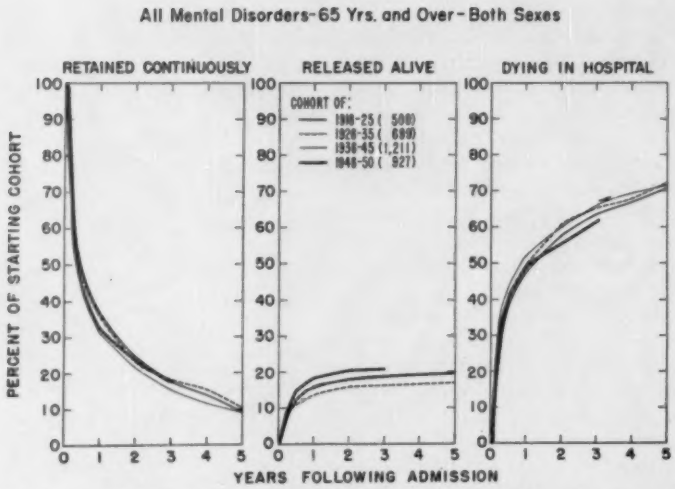


Figure 7—Per cent of First Admissions Retained in Hospital, Released Alive and Dead Within Specified Periods Following Admission to Warren State Hospital, Warren, Pa.: 1916–1950. All Mental Disorders—65 Years and Over—Both Sexes.

period 1916–1950 (Figure 6). Among patients in this age group first admitted in 1916–1925, 17 per cent died in the hospital within one year following admissions and 23 per cent within three years. Among patients admitted in the period 1946–1950, the corresponding percentages dropped to 6 per cent and 8 per cent, respectively. The above data apply to the experience of these patients during first admission status.

To obtain their complete mortality experience, i.e., to determine what proportion of the first admissions were dead within, say, three years following first admission including patients who died in the hospital and those who died in the community following release, the deaths among the patients released would also have to be determined and added to those who died in the hospital. Making a conservative estimate of the number of such deaths and adding these to the number who died in the hospital, we can state that of 100 first admissions under 65 years of age in the period 1916–1925 approximately 63 per cent would still be living three years after hospitalization and 27 per cent would be dead. Among 100 first admissions in the period 1946–1950, 90 per cent would still be living three years after first admission and 10 per cent dead.

As can be seen from Figure 7, the mortality following admission for the patients 65 years and over is much more severe, with about 50 per cent dead within one year following admission and at least 60 per cent dead within three years. There has been little change in this picture over the years.

Thus, it should be clear that data on trends of survivorship as well as of incidence rates are needed in order to explain variations in lifetime prevalence rates of mental disorders between population groups.

Conclusion

Our knowledge of the epidemiology of mental disorders must be extended

beyond that gathered through studies of mental hospital populations and the studies of either treated or true prevalence (i.e., treated plus untreated cases) of mental disorders. To accomplish this, it is essential that several basic issues be resolved so that comparable data can be gathered in different population groups. The first is to obtain agreement on what constitutes a case of a specified type of mental disorder. The second is the development of standardized case-finding methods for detecting cases in the general population, and standardized methods for their classification. The third is to devise methods for measuring duration of illness, that is, the interval between onset of disease and periods of remission, and for characterizing the psychologic status, the degree of psychiatric disability, social and familial adjustment, and physical condition at various intervals following onset of disease. The fourth is to evaluate the effect of treatment on such indexes. It is to solve these major research problems that the epidemiologist and statistician need the help of the psychiatrist, psychologist and social scientist.

Armed with the tools derived from such research it will be possible then to determine the differential rates at which the members of various population groups develop specific mental disorders, pass through various stages of disability, achieve various stages of recovery or die. It is only through such studies that we will advance our knowledge of the incidence, duration, and prevalence of mental disorders.

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Fulbright Opportunities

The booklet of "U. S. Government Awards under the Fulbright and Smith-Mundt Acts, for 1958–1959," for university lecturing and advanced research is now available. Opportunities in Europe, the Near and Far East, Africa, and Latin America for the two types of programs are described. Among the opportunities are a number allied to public health. The booklet is available from the Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Ave., Washington 25, D. C. October 1 is the deadline date for application.

Vaccination Against Acute Respiratory Illness of Adenovirus (RI-APC-ARD) Etiology

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Parts of one introductory and one closing sentence reveal immediately the importance of this presentation to all in public health. "This vaccine . . . produced a 98 per cent reduction in the incidence of adenovirus disease . . ." and ". . . vaccine (for civilians) must await an investigation . . . of the incidence of the disease in civilian populations."

Adenovirus disease [1-8] is responsible for the major portion of all acute respiratory illness among recruits in the military services.[9-13] The excessively high rates have resulted in an undue loss of manpower and disruption of troop training programs while the cost of medical care has been staggering. Thus, a safe and effective vaccine, protective against this disease, has become a necessity for the Armed Forces. Investigations with the ultimate aim of producing such a vaccine have been in progress in our own [14-16] and other [17, 18] laboratories and significant advances have been recorded. The purpose of this report is to review the development of an adenovirus vaccine at the Walter Reed Army Institute of Research and to present the results of its evaluation in a field trial.[14-16] This vaccine, a bivalent Types 4 and 7 formalin-killed product prepared from infected monkey kidney tissue culture, produced a 98 per cent reduction in the incidence of adenovirus disease in a carefully controlled study made among newly inducted soldiers.

Vaccine Development

Initial consideration of the development of the adenovirus vaccine gave primary emphasis to three factors, viz., the strains of virus to be used, the safety of the preparation on human inoculation, and the immunizing potency. Early investigations in several laboratories showed that the adenoviruses comprise an antigenically heterogeneous group of agents [1, 2, 5, 11, 19-21] and that there are at least 14 distinct serotypes.[20] While such strain differences might have seriously complicated the vaccination problem it is fortuitous that only three of these Types, i.e., 3, 4, and 7, are of contemporary importance in epidemics in military recruits.[2, 11] Hence it is necessary to induce resistance against these three types only.

Because the adenoviruses do not propagate satisfactorily in the common laboratory hosts, including embryonated eggs, these usual sources for virus production could not be employed. For reasons of safety human malignant tis-

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sue cultures, such as the HeLa cell, could not be used for preparing the virus. Fortunately, however, these agents could be adapted to growth in tissue cultures of monkey kidney and the materials thus obtained contained sufficient viral mass to stimulate immunity.

The general process employed for preparation and testing of the adenovirus vaccine is summarized in Table 1. Virus suspensions prepared from infected monkey kidney tissue cultures maintained in synthetic mixture 199 were free of serum constituents and had protein nitrogen values as low as that of the poliomyelitis vaccine. The infectivity titers obtained when this material was assayed were of low order (10^{-2}–10^{-3}). However, these do not truly represent the virus content of the vaccine because the virus particle count of such infected materials may be from 100,000 to 1,000,000 times as high as the titer indicates.[22] Failure to take this into consideration may lead to spurious conclusions when comparing the virus content of different vaccines. The complement-fixation (CF) antigen in the virus preparations is a "soluble" substance [5, 10, 22] common to all mem-

Table 1—Steps in Preparation of Adenovirus Vaccine

Virus Production:

1. Maintain monkey kidney tissue cultures with synthetic mixture 199.
2. Inoculate with adenovirus Type 4 or 7 and incubate at 36° C until cells are degenerated (4 to 7 days).
3. Harvest, homogenize (blendor), and clarify by low-speed centrifugation.
4. Neutralize pH and pass through sintered glass filter, medium porosity.
5. Virus identity tests with monotypic rabbit antisera.

Preliminary Assay:

Expected values: infectivity titer $10^{-2} - 10^{-3}$
CF titer 1:2 – 1:8
Nitrogen mg/ml
Total < 0.2000
Protein < 0.0250

Virus Inactivation and Pooling:

6. Add freshly redistilled formalin, final concentration 1:4,000 and incubate 6 days at 36° C.
   Tests: Process of inactivation is followed in daily samples.
   Viral inactivation complete in 3 or 4 days.
   Sterility is checked.
7. Bivalent Types 4 and 7 pool prepared.

Safety and Potency:

8. Final safety tests:

   Tissue culture (monkey kidney and HeLa cell)
   Animals
   - Monkey (histology and serology for poliomyelitis)
   - Guinea pig
   - Hamster
   - Mouse (adult and suckling)
   - Rabbit

   Artificial media

Potency assay:

Guinea pigs:
1 dose, 0.25 ml of unpooled sample of monovalent vaccine intramuscularly in 6 pigs. Bleed in 21 days, test aliquot pool. Minimum neutralizing antibody titer for each type, 1:2.

Man: Final pool vaccine must regularly stimulate neutralizing antibodies to Types 4 and 7 in adults after a single 1 ml intramuscular dose.

bers of the adenovirus family.[2, 5] Antibody to this antigen does not appear to be concerned with immunity.[10, 12]

The infectivity of the adenovirus preparations was usually reduced below a detectable level after incubation for three days at 36° C with formalin in a final concentration of 1:4,000. To provide a margin of safety it was routine to incubate for twice this period or six days. In the final monovalent vaccine lots there was no evidence of the presence of viable virus when 60 ml amounts of each were tested in monkey kidney tissue cultures which were observed initially for 12 days for cytopathogenic change due to virus nor when the cultures were homogenized and passed to fresh kidney cultures which were observed for an additional 12 days. The final content of free-formaldehyde in the materials was low and caused only a slight "stinging" reaction of short duration on intramuscular injection of 1 ml volume in man.

The tests for sterility and safety, which included cultivation on a variety of artificial media and the inoculation by several routes into five mammalian species and monkey kidney and HeLa cell tissue cultures, were considered adequate to detect the ordinary bacterial or mycotic pathogens and contaminating viruses which might possibly have been present in the adenovirus materials. Especially important were the tests to exclude poliomyelitis virus which might have been introduced into the tissue cultures from exogenous sources or derived from the kidneys of the "normal" monkeys used to prepare the tissue cultures. These tests included observation of temperature and behavior, of histopathology of the central nervous system, and tests for development of neutralizing antibody against poliomyelitis viruses in rhesus monkeys given vaccine by cerebral and parenteral routes. Finally, 25 human volunteers were vaccinated and carefully observed prior to the first injection into the troops.

The potency assays were performed both in guinea pigs and man. Aliquot pools of sera from guinea pigs which received Type 4 aqueous vaccine regularly gave homologous neutralizing antibody titers of 1:2. Type 7 aqueous vaccine failed in our hands to yield detectable antibody, but the similar vaccine prepared commercially elsewhere[23] has shown the same potency value as for Type 4. Both vaccine types regularly induced neutralizing antibody levels of 1:32 in guinea pigs when incorporated in Arlacel-mineral oil adjuvant.

The bivalent vaccine induced levels of neutralizing antibody as high as 1:128 in human volunteers, even in those individuals who initially had no detectable antibody. The mean neutralizing antibody levels in nine adult persons given the bivalent vaccine and tested at various time periods is shown in Figure 1. The mean titer, which was 1:1–1:3 prior to vaccination, increased rapidly reaching the maximum level by the second week postinoculation and declined only slightly during the 14 weeks following. It is noteworthy that the postvaccination antibody titer against the heterologous Type 3 virus was as great as against the homologous Types 4 and 7 viruses in the vaccine. Further, the antibody levels against all three types are as high as ordinarily achieved following natural infections. A second injection of vaccine did not elevate the antibody level above that achieved by a single dose. The rapidity of the antibody increase following vaccination and the fact that the vaccine was effective in preventing adenovirus disease one week postinoculation[14, 16] (also see ref. 12) indicated that the antibody response in man was primarily a recall phenomenon likely resulting from previous infection with agents of the group. The low CF antibody response was of

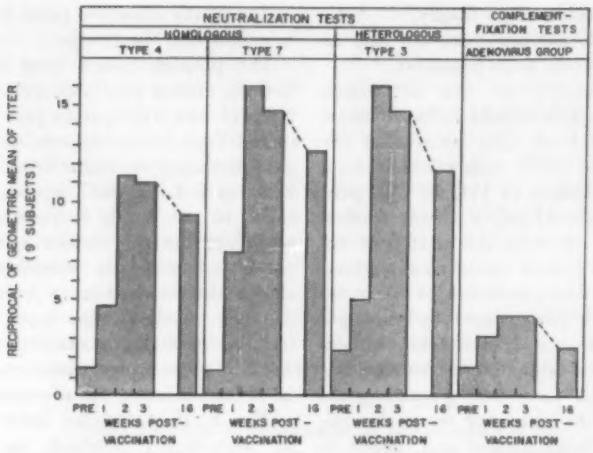

Figure 1—Neutralizing and CF Antibody Patterns in Volunteers Given Bivalent Types 4 and 7 Adenovirus Vaccine.

little concern since such antibody is not associated directly with immunity to these agents.[12]

Vaccine Evaluation

The effectiveness of the adenovirus vaccine for preventing acute respiratory illness caused by these agents was measured in a controlled study carried out at Fort Dix, N. J., during the winter of 1956. The study group comprised 624 recruits who were chosen in approximately equal numbers from the component of each of six newly formed companies. The study population was purposely limited in size to make possible close regulation and accurate observation, but was larger than needed to permit reliable statistical interpretations. Epidemics of other respiratory diseases, such as influenza or streptococcal infection did not occur at Fort Dix during the study period; hence, the vaccine was evaluated without any complications which might be introduced by these additional illnesses.

The study personnel chosen from each company were divided at random and without known bias into equal sized groups designated A and B. Group A men were given initially 1 ml of adenovirus vaccine intramuscularly and Group B persons, who were the controls, received 1 ml of a formalin-saline placebo. One week later both groups received a second injection of either vaccine or placebo. Complete records were kept of all hospital and dispensary admissions from the six companies under study during the eight weeks of the basic training period. Neither the subjects nor the hospital personnel concerned with their medical care had knowledge of whether the patients had received vaccine or placebo and the decision to admit to the hospital was usually based objectively upon a requisite temperature of 100° F or greater. All persons in the study were bled routinely prior to vaccination and again three and seven weeks later. In addition, throat washings and acute and convalescent blood specimens were collected from all persons who were admitted to the hospital for a respiratory illness during the study

Table 2—Summary of Adenovirus Vaccine Evaluation, Hospitalized Cases

Patients	Week from First Injection	Numbers of Cases		Reduction in Expected Number of Cases
		Vaccinated (311 Total)	Control (313 Total)	
All respiratory disease	1	17	19	11%
	2–5	9	69	87%
	6–8	5	5	0
Adenovirus only	1	15*	11	0
	2–5	1	61	98%
	6–8	0	0	0

* This includes 4 cases which were serologically indeterminant, but were classed as positive.

period. These specimens were stored under proper conditions until tested in human cell tissue cultures for either the presence of adenovirus or for diagnostic increase in amount of adenovirus group CF antibody.

The numbers of cases hospitalized for all acute respiratory illnesses, regardless of etiology, in the vaccinated and control groups is shown in Table 2 and Figure 2. For simplicity and uniformity the results from the individual companies were combined and the findings are expressed in relation to the time period from the first injection of vaccine or placebo. During the period of the first week following the initial injections the incidence of respiratory disease among the vaccinated and controls was approximately equal. However, during the second through fifth weeks there was an 87 per cent reduction in the expected occurrence of acute respiratory illness. Following this period, when the adenovirus susceptibles were largely exhausted, the occurrence was the same in the two groups.

More precise evaluation of the vaccine shown in Table 2 and Figure 3 was obtained by eliminating from consideration those cases not of adenovirus etiology. For this purpose a fourfold or greater increase in adenovirus CF antibody was considered as diagnostic.* It is seen that during weeks two to five, only a single case of adenovirus illness occurred in the vaccinated persons and this case had an onset on the eighth day following vaccination. During this time there were 61 cases among the controls. Thus, adenovirus disease was virtually eliminated from the vaccinated group as a result of the use of the vaccine. There were no cases of adenovirus disease in either vaccinated or control groups after the fifth week.

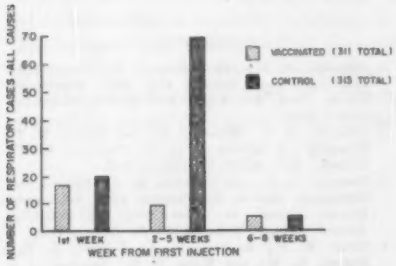

Figure 2—Occurrence of Hospitalized Cases of Acute Respiratory Illness, all Causes, in Vaccinated and Control Groups, Fort Dix, N. J., Winter, 1956.

* On the average the positive cases showed a far greater increase than the fourfold minimum, the mean rise being 17-fold. In a few cases the convalescent serum titer was only 1:5, a value which commonly results from the vaccination itself. Such cases in vaccinated persons were serologically indeterminant.

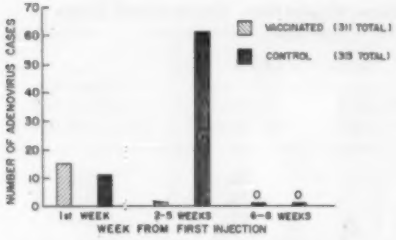

Figure 3—Occurrence of Hospitalized Serologically Positive Adenovirus Cases in Vaccinated and Control Groups, Fort Dix, N. J., Winter, 1956.

During the study 88 of the 124 hospitalized cases of acute respiratory illness among the personnel studied were diagnosed as adenovirus disease. Eleven of the 36 nonadenovirus cases were diagnosed serologically as influenza A while the etiology in the remaining 25 patients remains unknown.

There was no marked reduction in the number of patients or of office visits for mild respiratory disease treated at the dispensary on an outpatient basis. Any beneficial effect of the vaccine was obscured by the occurrence of other illnesses of nonadenovirus etiology, such as the common cold. The routine serum samples taken prior to and three and seven weeks postinoculation were neither properly spaced nor sufficient in number to permit a definitive adenovirus diagnosis for the dispensary cases. However, data presented elsewhere [16] of the serologic patterns of the routine bloods from those vaccinated with the nonvaccinated persons suggested a reduction in the occurrence of the mild illness, but the extent could not be estimated quantitatively.

Forty-seven adenovirus strains were recovered from throat washings of 76 hospitalized persons on whom virus isolation attempts were made. Twenty-one of these belonged to Type 4 and 26 were Type 7. Type 3 virus was not recovered at any time during the epidemic. Thus, the present study evaluated the effectiveness of the vaccine in an epidemic of Types 4 and 7 adenovirus and the effectiveness against the other military type, i.e., Type 3, was not measured. The fact, however, that the neutralizing antibody titers in volunteers given the bivalent Types 4 and 7 vaccine were as great against Type 3 as against the homologous types suggests strongly that the vaccine would also protect against Type 3.

Comment

The vaccine was found to be safe and innocuous and none of the patients developed any untoward reaction as a result of the injections. The striking effectiveness of the vaccine in preventing hospital cases of adenovirus disease among newly recruited soldiers has important economic implications in its application to the control of this disease in military populations. Recent estimates have shown that adenovirus disease, at the present recruiting level, costs the U. S. Army alone in excess of $9,000,000 per year in direct costs for time loss and medical care. Employment of the adenovirus vaccine promises to reduce this cost drastically.

The need for adenovirus vaccine in civilians must await an investigation and appraisal of the incidence of the disease in civilian populations.

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130 Psychiatric Aids Honored

During Mental Health Week (April 28–May 4), the National Association for Mental Health announced 130 winners of 1956 Psychiatric Achievement Awards—one for each of 130 hospitals. Each winner received a gold pin and a Certificate of Achievement at a public ceremony in his own hospital or a larger state function. The winners were nominated by co-workers, patients, and visitors, as representative of the high quality of service rendered to patients.

The awards were started 10 years ago to focus attention on the important role played by psychiatric aides in the treatment and care of the mentally ill.

Rate of Urinary Fluoride Output in Normal Adults

ISADORE ZIPKIN, Ph.D. (with the technical assistance of W. A. LEE), and NICHOLAS C. LEONE, M.D., F.A.P.H.A.

This is the last of four papers addressed to the general topic "New Developments in Water Fluoridation." All are the basis for effective answers for the continuing public rejection of this means for better oral health.

Previous investigations have emphasized the importance of the kidney in the elimination of fluoride from the human body.[1-5] In earlier fluoride balance studies [4-5] the urinary output of fluoride was determined over relatively long periods of time. However, it was felt that the rate of urinary fluoride output could be better assessed over short intervals of time. In the present study the hourly rate of urinary fluoride elimination was determined in normal adults: (1) drinking water containing 1 ppm F, and (2) receiving in addition a "challenge" dose of 5 mg F as NaF.

Experimental

Eight normal adults 26–58 years of age, drinking a municipal water containing 1 ppm F, served as subjects for the present investigation. At 9:00 a.m. of the control day the bladder was emptied. Two hundred ml of tap water was drunk to insure an adequate urinary output and the urine voided during the next hour was collected. This procedure was repeated at 10:00 a.m., 11:00 a.m., 12:00 noon, and at 2, 4, 6, 8, and 10 p.m. Two hundred ml of tap water was also drunk at 12 p.m. and the urine voided between 12 midnight and 9:00 a.m. of the next day was collected as a single sample. Next, 200 ml water containing an additional 5 mg F as NaF was drunk; the regimen of the previous control day was repeated; and the study was completed at 9:00 a.m. of the day following the test day. Thus, three hourly urine samples, six two-hour samples, and one overnight sample of nine hours were obtained from each of the eight subjects during the control and test day. The subjects refrained from tea and fish, because of the high fluoride content, and recorded the kind, time, and amount of all ad libitum fluid consumption. All fluids exclusive of drinking water were assumed to contain 0.2 ppm F, and the daily diet was estimated to contain 0.3 mg F.[6]

Analytical Procedure—For analysis of fluoride 1 gm of low-fluoride CaO * was added to a volume of urine estimated to contain approximately 100 μg of fluoride, and the sample was evaporated to dryness in a platinum dish on a steam bath. The samples were dried overnight at 105° C and ashed slowly as follows: the urines were placed in a cold muffle furnace set at 600° F, removed after 40 minutes of heating, thoroughly triturated with water, evaporated to dryness, and dried overnight at 105° C. This ashing regimen was repeated at 800° F for 20 minutes and

* Prepared according to reference No. 7. The precipitated $Ca(OH)_2$ was dried overnight at 105° C and heated for one hour at 550° C. It was found to contain 2 ppm F.

Table 1—Fluid Intake and Urinary Output During a 24-Hour Period of Eight Normal Adults Drinking Water Containing 1 ppm F and Receiving a Supplement of 5 mg F as NaF

		Intake ml	Output ml	Per cent Intake Excreted
1 ppm F	Range	2,000–5,400	1,356–4,181	46.2–108.6
	Mean	3,089	2,600	84.9
1 ppm F + 5 mg F as NaF	Range	2,200–4,825	891–4,035	40.5–109.7
	Mean	3,048	2,448	79.3

twice at 1,020° F for 45 minutes. The samples were then analyzed for fluoride by established procedures.[8, 9]

Results and Discussion

The volumes of fluid intake and urinary output are shown in Table 1. No statistically significant differences [10] were found in the per cent of the fluid intake eliminated by the kidney during the control and test days ($p > 0.05$).

The total amount of fluoride ingested and eliminated by the kidneys during the control and test days is shown in Table 2. It is apparent that the per cent of ingested fluoride eliminated by the kidneys during the test day (54.1) was significantly less ($p < 0.01$) than that excreted during the control day (65.1). These data corroborate the earlier work of McClure, et al.,[4] as shown in Table 3.

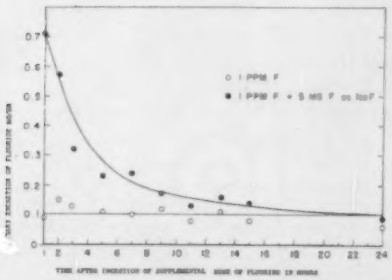

Figure 1—Urinary Excretion of Fluoride (mg/hr) in Eight Normal Adults Drinking Water Containing 1 ppm F and Receiving a Supplement of 5 mg F as NaF

It should also be noted that in both these studies approximately 60 per cent of the total fluoride ingested appeared in the urine. The remainder is found in the perspiration and feces.[4]

The urinary output of fluoride, expressed on a mg/hr basis for each of the 10 collection periods during the control and test day, is shown in Figure 1. During the control day when the subjects ingested water containing 1 ppm F, fluoride was eliminated at a relatively uniform rate of about 0.1 mg/hr. The rate of urinary output of fluoride was at a maximum one hour after ingestion of the "challenge" dose of 5 mg F as NaF and then dropped rapidly during the succeeding eight hours, finally approaching the rate of 0.1 mg/hr found during the control day.

As shown in Figure 1, 1.6 mg of fluoride was found in the urine during the first three hours after the ingestion of the "challenge" dose of 5 mg of fluoride. This represented approximately 20 per cent of the total fluoride ingested during the test period (Table 2).

Dr. Zipkin is scientist director and Dr. Leone is senior surgeon, National Institute of Dental Research, National Institutes of Health, Public Health Service, U. S. Department of Health, Education, and Welfare, Bethesda, Md.

This paper was presented before a Joint Session of the Dental Health and School Health Sections of the American Public Health Association at the Eighty-Fourth Annual Meeting in Atlantic City, N. J., November 15, 1956.

Table 2—Fluoride Intake and Urinary Fluoride Output During a 24-Hour Period of Eight Normal Adults Drinking Water Containing 1 ppm F and Receiving a Supplement of 5 mg F as NaF

		Intake * mg	Output mg	Per cent Intake Excreted
1 ppm F	Range	2.3–5.5	1.5–3.6	55.6–72.0
	Mean	3.2	2.1	65.1
1 ppm F + 5 mg F as NaF	Range	7.0–10.0	3.3–5.5	47.1–63.2
	Mean	8.1	4.4	54.1

* All fluids exclusive of drinking water were assumed to contain 0.2 ppm F. It was estimated that 0.3 mg F were consumed daily in the diet.

Hodge,[11] reporting the unpublished work of Smith and Gardner, states that normal young adults drinking water containing 1 ppm F and ingesting an additional single dose of 1.5 mg F, excreted 25 per cent of the total fluoride intake in three hours. In the present study the highest hourly rate of output of fluoride following ingestion of the "challenge" dose was observed during the first hour.

Table 3—Per cent of Total Fluoride Intake Excreted in the Urine in 24 Hours (Comparison with Values in Literature)

	F Intake mg	F Output mg	Per cent Intake Excreted
Zipkin and Leone	3.2	2.1	65.1
	8.1	4.4	54.1
Mean	5.7	3.3	59.6
McClure, et al.[4]	4.7	2.9	61.6
	5.2	3.6	69.3
	5.5	4.3	78.2
	6.2	3.8	61.2
	6.8	4.2	61.7
	7.2	4.4	61.1
	7.4	4.4	59.5
	8.9	5.3	59.6
	9.5	4.4	46.3
Mean	6.8	4.2	61.9

Summary

Urine samples were collected at 10 intervals during a 24-hour period from eight normal adults drinking 1 ppm F and receiving a single "challenge" dose of 5 mg F as NaF in 200 ml of water (test day). The total fluoride output after each time interval was compared with that found at a similar time during the previous 24-hour period (control day) when 1 ppm F alone was ingested in the drinking water.

After 24 hours 65.1 per cent of the fluoride ingested during the control day appeared in the urine, whereas only 54.1 per cent of the intake during the test day was found.

Fluoride was eliminated with the greatest rapidity during the first hour after ingestion of a "challenge" dose of 5 mg F. Thereafter, the rate dropped rapidly for an additional eight hours and then approached the rate of 0.1 mg/hr observed during the control day.

ACKNOWLEDGMENT—The assistance of Patricia B. Geiser, Public Health Service senior assistant nurse officer, in the organization and execution of part of the study is gratefully acknowledged. The aid of Jane Soban in performing some of the fluoride analyses is also gratefully acknowledged.

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Laboratory Refresher Courses

The Communicable Disease Center of the Public Health Service has announced the 1957–1958 Schedule of Laboratory Refresher Training Courses. The first is a four-week course on Laboratory Methods in the Diagnosis of Parasitic Diseases beginning on September 9. After, there are 11 one-, two-, or three-week courses in October, January, February, and March. The full schedule and other information from the Laboratory Branch, Communicable Disease Center, P. O. Box 185, Chamblee, Ga.

World Goals in Health Education of the Public

A. HELEN MARTIKAINEN, M.P.H., F.A.P.H.A.

In this last of three addresses before the WHO Forum Session some of the remarkable advances in this newest of public health disciplines—public health education—are recounted. That countries only recently embarked upon health protective programs should put this new medium to such effective use is but another indication of the breadth and effectiveness of WHO leadership.

One of the most important goals in the health education aspects of WHO's work has been and continues to be that of contributing to a deepening and more comprehensive understanding of the aims, meaning, and scope of health education as an integral part of developing services and training programs in health, education, and other closely related fields.

Historically in many areas of the world there has been some tendency to conceive of health education primarily as a program of producing illustrative materials and various audiovisual aids and in disseminating health information and publicity to the people. There is no question that in a large majority of the countries there will continue to be for many years to come a great need for preparing and producing various educational materials adapted to the needs, interests, language requirements, living circumstances, and available resources of the people concerned.

However, I think it can be said with some assurance that increasing attention is being placed on the importance of giving top priority to working with the people as human beings with interests, attitudes, beliefs, values, and feelings, all of which influence why they behave and live as they do. Their social and economic circumstances are also of major importance. As stressed by the WHO Expert Committee on Health Education of the Public in its first report, "health education, like general education, is concerned with change in the knowledge, feelings and behaviour of people." This report went on to say that "since learning is a change of an individual's ideas and practices, this change can be brought about only through the individual's own efforts. So long as he is passive toward a situation no learning takes place." (WHO Technical Report Series No. 89.)

The importance of enlisting active participation of people in health programs and other related education concepts has been featured in many of the Organization's activities during the past eight years. Regional and national conferences and seminars on health education of the public attended by professional leaders in health administration, public health training, nursing, sanitation, nutrition, maternal and child health, health education, mental health, general education, sociology, anthropology, physical education, psychology, and social work have been held in England, Mexico, Holland, Philippines, and Australia. Each one of these has involved a tremendous amount of preparatory work, planning, and thought to insure that the best possible technical and administrative arrangements have been provided to enable the participants to

contribute to mutual discussion and exchange of ideas, experiences, and thinking on future plans.

Consideration of health education needs, principles, methods, and future plans has also been included in several technical seminars and expert committee meetings devoted to environmental sanitation, nursing, maternal and child health, social and occupational health, school health, malaria, yaws, mental health, nutrition, public health administration, and professional and technical education.

During this current year health education of the public was featured as the subject of technical discussions at two of the annual regional committee meetings of the World Health Organization in the Southeast Asia and Eastern Mediterranean regions, respectively. During the past year or more preliminary work has been carried on by the WHO Regional Office for Africa in preparation for the first All-Africa Seminar on Health Education of the Public to be held in Dakar in April, 1957.

The training of professional and auxiliary health workers in the principles, concepts, and methods of health education is recognized as another world goal of high priority.

To date, with some exceptions, relatively little progress has yet been possible the world over in incorporating training in health education in the basic training of doctors, dentists, nurses, engineers, sanitarians, midwives, and other health personnel. In this connection I believe it will be of interest to you to know that the WHO Regional Office for Europe is now making preparations for convening a European Conference on this problem which is to be held in Wiesbaden, Germany, during the latter part of June and early July, 1957. Particular attention is to be devoted to considering the requirements, opportunities, and facilities needed for providing health education in basic medical education, in basic training for nursing services, and in advanced training for public health, particularly for physicians, nurses, health educationists, and others. Consideration will also be given to the needs and opportunities for refresher courses and inservice training. Plans are currently also being made by the Organization headquarters to convene an expert committee during 1957 to consider the needs and opportunities for training of health personnel in health education of the public.

Gradual progress is being made in some countries to include health education training in postgraduate public health courses offered by institutes of hygiene or schools of public health. WHO is at present cooperating with some of these national public health institutes, notably in Calcutta, Mexico City, and Beirut. According to information from the WHO Regional Office for Southeast Asia, the All-India Institute of Hygiene and Public Health at Calcutta is currently providing training in health education to all the postgraduate students enrolled in the one-year and shorter courses offered at the Institute. These postgraduate students include physicians, nurses, nutritionists, sanitary engineers, administrators of maternal and child health services, and industrial hygiene specialists. Beginning in June of this year the first three-month certificate course in health education was offered at the All-India Institute for experienced workers in public health, education, and allied fields. The Institute also has under consideration at

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This paper was presented before the National Citizens Committee for the World Health Organization at the Eighty-Fourth Annual Meeting of the American Public Health Association in Atlantic City, N. J., November 14, 1956.

present a proposal to establish a 10-month diploma course to train some specialists in health education, particularly for service with provincial or state health departments. Some promising beginnings in training of public health medical officers in health education have been made this past year at two of the hygiene institutes in Germany. There are other important institutes, outside of United States and Canada, currently extending postgraduate training in health education, namely in the United Kingdom, Philippines, Brazil, Chile, Mexico, and Puerto Rico.

There is a growing recognition in several countries of the need for a nucleus of well trained professional health educationists for technical leadership responsibilities at national, state, or provincial levels of health administration. We are informed that outside the United States, there are currently eight public health or hygiene institutes or special centers offering training for those workers who are interested in and qualified for professional careers in health education of the public. Since 1949 the Organization has granted a great many fellowships either for further graduate study in public health education or for courses of study of a shorter duration.

In many countries the main provision for training in principles of health education and for practical experiences in working with people is through inservice training courses for medical officers, nurses, sanitarians, health educationists, social workers, etc.

Another goal of world-wide importance is that of preparing teachers, school administrators, and other school personnel to become increasingly better prepared for their role and responsibilities in the total school health program.

Internationally, the need for teacher training in health and for development of school health programs has been stressed by various technical expert committees, regional and national seminars, and conferences. Health education in the school program was a featured topic of technical discussions conducted at the WHO Regional Committee Meeting for Southeast Asia held in New Delhi in September, 1956. This topic was also one of the main problems considered by the Technical Discussions on Health Education conducted at the Sub-Committee A Session of the WHO Regional Committee for the Eastern Mediterranean Region held in Teheran, also in September. It was also one of the major topics featured at the important conference of the International Union for Health Education of the Public held in Rome during April, 1956.

In recognition of the needs expressed by several governments and the emphasis given at several regional and international meetings the World Health Organization is currently, in collaboration with UNESCO, endeavoring to give support and encouragement to further developments. Some of the principal objectives of this joint effort include: (1) encouraging national health and education authorities and workers to make fact-finding studies of existing problems, practices, and future plans; and (2) to prepare teachers for cooperative effort with health personnel to improve the health status of children.

As a first step WHO, with consultant help and in cooperation with UNESCO, is in process of preparing a "Suggested Guide for Discussion" which is designed to help interested health and education authorities, directors of teacher-training institutions, classroom teachers, school administrators, health workers, and others in making their own studies about progress to date, existing problems and practices, and future plans for preparing teachers for health responsibilities. The preliminary draft

of this guide is being pretested and will be revised accordingly before it is officially distributed for reference and use of national health and education authorities during the spring of 1957.

For the future we hope that there will be increasing prospects for interested governments to sponsor cooperatively local, provincial and national seminars and conferences to help stimulate increasing interest, study, and cooperative action in training and services. Internationally, WHO proposes, subject to approval by the Executive Board and assembly sessions in 1957, the convening in 1958 of a special study group on this important problem in collaboration with UNESCO.

To summarize, the activities described are focused on activities which may contribute to meeting world goals in health education such as the following:

1. Enabling people to achieve better personal and family health through greater self-reliance and personal responsibility on a well informed basis.

2. Enlistment of active participation by people in meeting local and national problems in health and other aspects of life in accordance with the needs and the means and resources at their disposal.

3. Fostering more opportunities for training professional and auxiliary health workers in medicine, nursing, sanitation, and others, in the principles and methods of health education.

4. Enabling countries to train health educationists for technical leadership responsibilities in health education particularly with national and provincial services.

5. Fostering more cooperative effort in preparing teachers and other school personnel for their health promotion responsibilities.

Kansas Health Department New Home

In March and April, the Kansas State Health Department, previously scattered in various locations, moved into the new 12-story State Office Building, occupying chiefly the fifth floor. Says the Newsletter of the department, "The great advantage of working together was immediately felt, and is contributing to better working relations and efficiency. Besides—there is a great lift in working in such attractive quarters. We will be pleased to receive interested visitors in our new home."

Quality of Medical Care in Hospitals

LEONARD S. ROSENFELD, M.D., M.P.H., F.A.P.H.A.

Can quality of medical care be measured objectively? Experience in this difficult area is limited. Offered here is a method of measuring performance.

This study was undertaken as one of a series designed to devise and test indexes of adequacy and economy of service which would be sufficiently objective to be repeatable by different observers. Adequacy of medical care has two essential components: availability of the full range of services in accordance with current concepts and good quality of service. This study is concerned with the second of these components.

The quality of medical care is based on a complex of factors and does not lend itself to simple units of measurement. This accounts for the large variety of methods of measurement that have been devised, each adapted to the specific purpose of the evaluation.[1] Licensing bodies and accrediting agencies employ systems of standards against which to compare organization, staffing, facilities, and performance of the institution being inspected.[2] Various statistical measures of phases of quality of medical care have been devised.[3] Other measurements have been based on clinical evaluation of medical care either by direct observation, or by review of records.[4] The medical audit, generally consisting of a combination of statistical indexes of elements of care and retrospective review of cases, has been adopted by hospitals as a method of identifying deficiencies and improving quality of care.[5] Other studies have been designed to determine patient attitudes toward care.[6] Each is useful for the specific purpose for which it was designed. Each has its limitations as a measure of quality of care.[7]

Utilization of a system of quality measurements for program evaluation imposes more stringent conditions of objectivity than does its use for administrative control alone. To be ideally suited as an instrument of program evaluation the method of measurement should be: (1) sufficiently sensitive to distinguish differences in the quality of care among units studied; (2) objective in that different observers would arrive at similar ranking of units with similar magnitudes of differences between them; (3) valid in that it would reflect the quality of service in terms of current concepts of good medical practice; (4) based on sufficiently general principles of medical practice to be applicable to the several specialties; and (5) practical of application at costs that are not prohibitive. Analysis of data was carried out in a way to show the degree to which these conditions have been met.

Methodology

The method adopted provides for clinical evaluation of management of selected categories of illness and operation by qualified specialists. Hospital records were used for evaluation, according to procedures prescribed in schedules and written standards.

Lacking valid instruments for measurement of end results of medical care, such as amelioration of suffering and promotion of well-being, we must make measurements in terms of intermediate goals; that is, prompt and adequate provision of appropriate diagnostic and

therapeutic services as indicated by the needs of the patient and in accordance with the best current concepts and practices.

While clinical evaluation is probably more valid, it is less precise than other less direct, but more specific, forms of measurement. It therefore seemed advisable to test the reliability of the method used by arranging for independent review of the cases studied by two observers. This method of study has often been used in evaluating the objectivity of a test or method of measurement.[8]

Medical practice in hospitals was selected as the subject of study for both practical and theoretic reasons. It is assumed that there is a relationship between quality of medical practice within hospitals and in the community at large. Furthermore, intensive community organization of health services is generally focused on organized facilities. In addition, hospital service constitutes an important segment of medical care in the community. Finally, the hospital is an organized medical care facility which provides a practical focus for study. Because evaluation of a sufficient number of cases by direct observation would be very costly, it was decided to use the medical record as the basis for evaluation.

Important in developing an instrument for evaluation of the effects of organization is the question of controls. Obviously, it would not be possible to select a group of study hospitals and a control group, since all hospitals in the community would ultimately be affected by changes in community organization. Instead, a system of internal controls may be used by adopting the performance at teaching hospitals as a standard and comparing performance at community hospitals with this standard. This approach is based on the hypotheses: (1) that medical care rendered in teaching institutions represents a high standard of performance in the community; and (2) that there is a correspondence in standards of care in the several specialties and for various categories of illness in an institution.

It is assumed that regional organization would improve the quality of care in community hospitals to a level approximating that at teaching institutions. Use of the teaching hospital as a control provides the element of flexibility needed to adjust to the constantly changing scientific basis of the practice of medicine. No specific written standards, no matter how carefully drawn, would be adequate in five years.

A schedule and a set of general standards based on accepted principles of medical practice were devised. These provide for evaluation of essential elements in medical care, including diagnostic procedures, therapeutic procedures, and justification for hospitalization. The standards provide for rating of each item of management as "good," "fair," or "poor." In turn, procedures are prescribed for deriving a total rating on the basis of combinations of individual items of rating. A rating of "superior" is reserved for those cases which, in addition to receiving a rating of "good," have had all screening procedures in accordance with age.* This system of rating was adopted rather than one based on a

* Copies of schedules and standards used in this study, and as revised on the basis of experience are available on request to the author.

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This paper was presented before a Joint Session of the National Conference for Health Council Work and the Medical Care and Statistics Sections of the American Public Health Association at the Eighty-Fourth Annual Meeting in Atlantic City, N. J., November 12, 1956.

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numerical score because of the fact that the latter might mask serious deficiencies in management.[9] With the system adopted the total rating may be reduced to "poor" on the basis of any one of several serious types of deficiency in management. Patient welfare depends on good management all along the way.

Procedure—Random samples of records were selected from certain categories of illness and operation, representing three major specialties: Internal Medicine: myocardial infarction, the pneumonias, and diabetes mellitus; Surgery: appendectomy, gallbladder surgery, and surgery of malignancy; and Obstetrics and Gynecology: cesarean section and hysterectomy.

The groups of illnesses and operations selected are sufficiently common to represent a substantial proportion of the admissions to general hospitals and would require good medical judgment in diagnosis and treatment. Nevertheless, because diagnoses are often multiple, a broad range of medical practice is represented in the sample.

Samples of 40 records from each specialty in each hospital were selected. Four hospitals agreed to participate in the study. Two are major teaching affiliates of medical schools (Hospitals A and B), and two are community hospitals (Hospitals C and D). Two consultants in each specialty were retained. Each is a diplomate in his specialty and has a teaching appointment. Before starting work each consultant was oriented to the study and methods. Records at the first three hospitals were reviewed by two consultants in each specialty, whereas one consultant in each specialty reviewed records in the fourth hospital.

Findings

Sensitivity of Method—The per cent of records rated "superior" and "good" by each consultant at each of the three institutions is shown in Figure 1. The

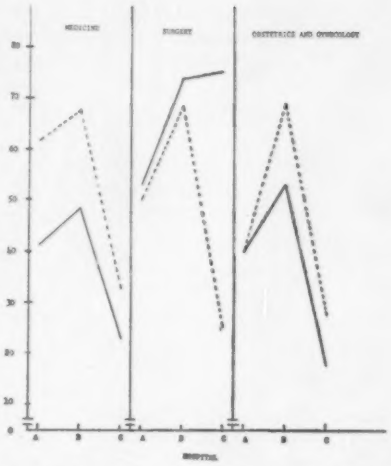

Figure 1—Per cent of Cases in Each Specialty Rated Superior or Good by Two Independent Raters at Each Study Hospital.

distribution of ratings ("superior," "good," "fair," "poor") for each hospital and each consultant is shown in Table 1. Among the hospitals where pairs of consultants were used, each pair of consultants arrived at the same ranking of hospitals, with the exception of one consultant in surgery at Hospital C. Because there is evidence that this consultant was less critical in reviewing records at Hospital C than at the other institutions, his observations are omitted from some of the tabulations.*

* Because of its implication with regard to the objectivity of method, the disagreement of one surgical consultant concerning the ranking of Hospital C was investigated. Before seeing the results of analysis it was his personal impression that the management at Hospital C ranked substantially below that at Hospitals A and B. Whereas, his intuitive ratings at Hospitals A and B were higher than objective ratings, at Hospital C they were substantially lower. In addition, it was found that almost half the disagreement between the two surgical consultants in Hospital C was based on disagreement on facts, a percentage substantially higher than was true of other pairs of consultants. These observations suggest that (whether for lack of time or for

Table 1—Percentage Distribution of Records According to Quality Rating, by Hospital and Consultant

	Medicine Consultant		Surgery Consultant		Obstetrics and Gynecology Consultant	
Rating	1	2	3	4	5	6
			Hospital A			
All	100.1	100.1	100.0	100.0	100.0	100.0
Superior	20.6	20.6	0.0	3.1	2.5	2.5
Good	20.6	41.2	53.1	46.9	37.5	37.5
Fair	32.4	32.4	43.8	50.0	45.0	40.0
Poor	26.5	5.9	3.1	0.0	15.0	20.0
			Hospital B			
All	100.0	99.9	100.0	99.9	100.0	100.0
Superior	9.7	16.1	5.3	7.9	6.2	12.5
Good	38.7	51.6	68.4	60.5	46.9	56.2
Fair	35.5	29.0	23.7	21.0	43.8	9.4
Poor	16.1	3.2	2.6	10.5	3.1	21.9
			Hospital C			
All	100.0	100.0	100.0	100.0	100.0	100.0
Superior	2.5	5.0	2.5	5.0	0.0	0.0
Good	20.0	27.5	72.5	20.0	17.5	27.5
Fair	42.5	47.5	22.5	47.5	32.5	25.0
Poor	35.0	20.0	2.5	27.5	50.0	47.5
			Hospital D			
All		100.0		100.0		100.0
Superior		0.0		0.0		0.0
Good		20.5		54.8		33.6
Fair		28.2		40.4		40.3
Poor		51.3		4.8		26.0

Using the observations of the three consultants who rated records in all four hospitals tests of significance were done to determine how well the rating procedure discriminates between hospitals. Difference between the ratings of the teaching hospitals (A and B) just borders on significance ($P = 0.02 - 0.05$). On the other hand, the difference between the average ratings of Hospitals A and B and that of Hospital C is highly significant ($P = < 0.001$). The same is true of the comparison between average ratings of A and B and those of Hospital D. These findings tend to support the hypotheses on which the study is based.

Objectivity—The ideal method of quality measurement would be one which would assure the same evaluation

other reasons) the consultant who was not in agreement with the others concerning Hospital C had been less critical in applying standards in that hospital than at the other institutions.

Table 2—Degree of Agreement in Rating of Pairs of Consultants According to Hospitals

Hospital	1 No. of Records	2 Agreement Expected *	3 Agreement Observed	4† Index of Agreement	5 Index of Dispersion ‡
All	287	91.1	159	34.6	0.54
A	106	35.8	57	30.2	0.54
B	101	38.2	59	33.1	0.52
C **	80	26.5	43	30.8	0.55

* Expected on the basis of there being no correlation between the ratings of consultants.

† Derived by formula $\frac{3-2}{1-2} \times 100$.

‡ Average of disagreement between consultants in terms of the number of steps difference on the rating scale.

** Results of surgical ratings in Hospital C omitted.

in any given case when the method is applied by independent observers. An effort was made to test the degree to which this ideal could be achieved. In Table 2 is shown the degree of agreement between pairs of consultants. This table is based on the comparison, on a contingency table, of the paired ratings on groups of records according to hospital (see Figure 2). The expected number of agreements (column 2 in Table 2) was computed on the basis of marginal distribution of ratings for each consultant. This assumes that the expected distribution of ratings would be random in accordance with marginal totals. In all instances the observed number of agreements in rating was greater than the expected number.

The index of agreement (column 4) represents the distance that the observed number lies between the expected num-

Doctors 2, 4, 6

Doctors 1, 3, 5	S	G	F	P	TOTAL	Hospital A
S	7			1	8	Specialty All
G	1	23	15		39	
F		17	22	4	43	Disease or Operation All
P	1	4	6	5	16	
Total:	9	44	43	10	106	

Expected number of agreements	35.8
Observed number of agreements	57.0
Index of agreement	30.2
Index of dispersion	0.54

Figure 2—Example of Contingency Table Used in Computing Indexes of Agreement and Dispersion.

ber and the total number of records. In other words, in establishing the expected number as zero, we are attempting to measure the per cent of the way that the observed number of agreements lies between the expected number and the ideal of 100 per cent agreement. Observed agreement lies approximately one-third of the way between random and perfect agreement.

The index of dispersion (column 5) was designed to measure the magnitude of differences between pairs of consultants. In deriving this index weights were assigned according to the degree of difference in rating. Thus, a rating of "good" by one consultant and "poor" by the other is assigned a weight of two; while a difference from "fair" to "good" is given a weight of one. Perfect agreement would show an index of dispersion of zero while, theoretically, complete disagreement (in which one consultant would rate all records "poor" and the other would rate all record "superior") would show an index of dispersion of three. An average index of dispersion of 0.54 was found. Table 3 shows a similar analysis of agreement according to specialty.

Examination of reasons for major differences in rating individual items reveals that almost half the differences were attributable to situations not covered adequately by the standards, or in which the standards were ambiguous. In another quarter differences devolved around questions of fact, because one consultant missed a significant item of information in the record. It would therefore appear that with revised standards, and improved methods of orienting consultants, a substantially higher degree of agreement could be achieved.

Validity—Probably the best way of determining the validity of the methods used would be by means of direct observation of the management of cases by one consultant and rating of records by another. Since this was not possible, other indications of the validity of the method were explored. One of these was the comparison of objective ratings based on the standards, with the intuitive ratings formulated by consultants after review of the record, but before deriving an over-all rating according to the procedure prescribed. Although these ratings are not completely independent, they reflect a measure of consultant satisfaction with the system. For all records the index of agreement between intuitive and objective ratings was 56.4, while the index of dispersion was 0.32.

In a further effort to assess the validity of standards, reasons for "poor" ratings on individual items were examined. Deficiencies on which these

Table 3—Degree of Agreement in Ratings of Pairs of Consultants According to Specialty

	1	2	3	4	5
		Agreement			
Specialty	No. of Records	Expected	Observed	Index of Agreement	Index of Dispersion
All specialties	287	91.1	159	34.6	0.54
Medicine	105	29.4	54	32.5	0.64
Surgery *	70	31.4	44	32.6	0.44
Obstetrics and Gynecology	112	34.5	61	34.2	0.50

* Results of surgical ratings in Hospital C omitted.

assessments were based seemed to fall into two categories. One was composed of those that might reflect inadequacy in recording alone and not necessarily important omissions or mistakes in diagnosis or treatment. These were classified as "presumptive" evidence of deficiency in management. Classified in this manner are such things as inadequate record of history or physical examination; inadequate summary of diagnostic findings prior to admission; failure to obtain or adequately record consultations; and inadequate justification for surgery in the record.

The second category of deficiency was made up of instances of omission of essential diagnostic or therapeutic procedures which would be recorded routinely if they had been done, or use of contraindicated therapy, or unacceptable surgical procedures. This group was classified as "substantial" evidence of deficiency. Following are a few examples drawn from the records:

Hemoglobin of 6.3 gm preoperatively in a case of elective surgery—in which no transfusion was given nor further exploration before operation done.

Performance of GI series and barium enema 10 days after confirmed myocardial infarction.

Use of supracervical hysterectomy without justification. In one such case, a cervix with carcinoma in situ was left behind.

Reasons for ratings of "poor" in eight items of management (history, physical examination, laboratory, x-ray, other diagnostic examination, consultation, and medical and surgical management) were classified according to the type of deficiency "presumptive" or "substantial." The results of this analysis are shown in Table 4.

There is a correlation between frequency of items rated "poor" showing "presumptive" evidence and the frequency of those showing "substantial" evidence of deficiency. This would seem to give additional support to the thesis that hospital records provide a valid picture of the quality of care.

It may be argued that, in a hospital setting, a number of individuals are concerned with the care of the patient and the record is the principal medium of communication. The record becomes particularly important when the patient is readmitted to the same hospital or is admitted to another hospital. Failure to record adequately may place the patient in serious jeopardy, even though individual episodes of management may be competently handled.[10]

Correspondence in Standards Among Specialties—Findings suggest that there is a correspondence in the standards of care among the several specialties in an institution. Agreement, however, is not complete. It is reasonable to expect that there should be some correspondence in standards of care in the several departments in a hospital, as common hospital policies concerning staff appointments, case review, and control measures would apply to all services.

Table 4—Per cent of Items Showing "Presumptive" and "Substantial" Evidence of Poor Management

Hospital	No. Cases	No. of Items	Per cent of Items Rated "Poor"		
			Total	"Presumptive"	"Substantial"
All	446	3,568	8.6	4.1	4.5
A	106	848	4.4	2.5	1.9
B	101	808	3.2	1.4	1.9
C	120	960	13.6	7.0	6.7
D	119	952	11.7	5.0	6.0

The findings suggest that the standards are similarly applicable to the three specialties.

Costs—Costs of such a study would be controlled by the size of the sample. Using a sample of 120 records per hospital, and a single consultant in each specialty, it requires about 40 hours of consultant time to study a hospital. At the rate of remuneration of $10 per hour the cost of record review at a hospital comes to approximately $400. In addition, costs of tabulation and analysis must be added. Once routinized it is estimated that costs of these operations should amount to about one-third of the costs of medical review.

Although costs of surveying all hospitals in a metropolitan area would be substantial, the several types of hospitals might be sampled. Furthermore, hospitals might be willing to contribute toward the costs of such a study. Increasing numbers of hospitals are now having medical audits conducted at considerably higher costs.

Screening Procedures—One of the items of rating was completion of screening procedures appropriate to the patient's age. Wide variations were found among hospitals and among specialties with regard to screening practices (Table 5). It would appear that this is a question of policy worthy of consideration by hospital boards and medical staffs.

Table 5—Per cent Cases with All Screening Procedures Done, According to Hospital and Specialty

	Hospital			
Specialty	A	B	C	D
All specialties	10	19	3	2
Medicine	21	31	3	0
Surgery	9	3	6	6
Obstetrics and Gynecology	2	14	0	0

Accommodation—The distribution of qualitative ratings according to accommodation for Hospitals A, B, and C (each of which have substantial numbers of public ward, as well as private and semiprivate, patients) was examined. In internal medicine there is relatively little difference in the proportion of private and public ward cases in which management was considered "superior" or "good." Results suggest that management of ward cases in surgery and obstetrics is better than that of private cases. How much of this difference is due to differences in recording practices is not clear.

Discussion

The primary objective of medical care organization, whether in a single institution or in the community at large, is the efficient utilization of available resources in order to achieve good standards of care. Any evaluation of the effects of a program of medical care organization should include provision for measurement of quality as one of the essential components of adequacy of service. The instrument should be designed to isolate the effects of organization from those changes which would inevitably occur as a result of influences operating generally.

Although various approaches to the evaluation of quality of medical care in hospitals have been used in the past, few efforts have been made to determine their reliability, validity, and limitations, and to develop a valid basis of comparison of standards in several institutions. This study was designed to test these attributes of a method of measuring the quality of medical care which would be suitable to evaluation of the effects of community organization of health services. Findings thus far seem sufficiently promising to merit further exploration. The experience has made it possible to identify certain

shortcomings in the method and to suggest ways in which these shortcomings can be met at least in part.

In addition to limitations in reliability of clinical evaluation, there are other serious limitations in this approach imposed by current standards of medical practice and methods of exploring psychologic and social aspects of illness. Records of social and psychiatric status were found to be generally deficient, in spite of the great emphasis currently being placed in medical education and in the medical literature on these aspects of care. Possibly, there is need for restudy of the form and content of the medical history.

The observations of this study suggest that standards similar to those developed may have several areas of usefulness. Its most immediate application may be as a method for self-evaluation by medical staffs. Such standards should be useful to record committees and tissue committees, as well as to those responsible for medical audits. It provides a system for case review which could be applied to samples of cases in conducting continuing or periodic evaluations. The approach offers some promise as a method of comparing performance among institutions. Should the direction of research described be judged to have merit, the study should be repeated using revised standards to determine whether greater reliability can be achieved.

Our aggregate experience with evaluation of quality of care has been limited. This fact cannot be accepted, however, as an indication of the relative importance of the problem. Hospitals, payment agencies, and the public at large are deeply concerned with the quality of medical care. Without a valid measure of quality we cannot determine the relative values of different organizational and administrative methods. The fact that existing methods do not meet the need is indicated by Myers' statement that ". . . no other organization (than the hospital) exists in which management is so truly frustrated and so ineffective because of its incapacity to judge the quality of its product." [11]

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Reorganization in Missouri

The Division of Health of the Missouri Department of Public Health and Welfare has been reorganized. The previous 18 bureaus have been consolidated into five sections—Local Health, Personal Health, Environmental Health, Hospital, and General Services. The first two are designed to be directed by public health physicians, the third by a sanitary engineer, the last two, respectively, by a medical administrator and a business administrator.

The May issue of the department's "News" shows the organization chart for the department and for each section, including both present and proposed positions. The staff currently assigned to director positions are each designated as acting until a permanent health officer is selected. E. M. Hardwicke, M.D., former consultant, Medical-Health Civil Defense Bureau, is currently acting director of health.

A new salary scale has gone into effect as of July 1. The "News" says that in the past salaries of the division for the most part have not been competitive. The new scales should facilitate recruitment. Permanent appointments are to be made on the basis of competitive, unassembled examinations that were held during June.

Are There Missing Links?

REED WHETSTONE

The June Journal carried the story of a citizen survey of a rural county's needs as told by the people who directed it. Here a businessman recounts another similar experience, but in a city-county setting. Both have much to tell us about lay participation in what we are prone to think of as areas of professional competence.

"Are There Missing Links?", or "Citizen Evaluation of Public Health Problems." These are two ways to say the same thing. Though in the one case not so obvious, they both indicate lay participation or interest in professional fields.

We of the survey committee in Colorado Springs had two reasons for titling the report of our study, "Are There Missing Links?" First, we wanted our report to be read, and did not believe we could interest lay citizens in public health problems with a stuffy, disinteresting label or technical contents. Second, as laymen we do not think in the same terms as professionals, a point to which I shall return later. Our report was written by laymen for general public consumption.

Each of you represents a community, county, or some other area where you are responsible for the public health or, at least, interested in its protection or promotion. If you were not, you would not be a member of this Association nor present here. And, as such a person, you are probably responsible for some phase of the annual budget to protect this health.

Now I would like to ask, how do you prepare this budget? Do you take last year's figures and add what you think you can get? Do you wind up with something less, then get along as best you can with the remainder? I know from the business standpoint we mentally juggle last year's figures with changes in national and local economy, try to interpret that intangible pulse of the general public, and conclude with a "guesstimate" of our next season's operations. Are we treating public health administration as if it were such a budgetary problem? Do we take last year's troubles and problems and add what we think we are likely to get this year?

You know the problems that come to you, but how about the ones that do not? Do you have adequate facilities for your known problems? How about facilities for your unknowns? If not today's unknowns, then tomorrow's? Is your community growing through industry, military personnel, or large governmental agencies? Is the economy of your region changing? Are the people and their occupations changing? If not, you have no problems—and you had better move out!

This is not to imply we are not thinking and planning ahead. I know we are and so do you. That is one of the purposes of this association. Let me read from a pamphlet explaining some of the activities and purposes of the American Public Health Association: ". . . people make discoveries; people devise new technics; people through their labors unravel mysteries and bring new benefits to mankind.

"There is no overstating the value of an organization which enables those

people to exchange ideas, to explore theories, to share successes and failures, to gain from their colleagues the inspiration and the glimmers of light which can open new vistas for future work."

Colorado Springs is much like other communities—we are getting along pretty well. We have an aged population partially because of our excellent climate and adjacent resort areas. We have a young population for the same reasons and because of our growing industry. We have military people because of two permanent installations, Fort Carson and CONAD ADC, giving us a military population of 30,000, or roughly a quarter of the total.

But, we became curious, for with the United States Air Academy coming along by 1958 to increase our population further we wanted to be sure our health facilities were keeping pace with our growing needs. And with the help of our Chamber of Commerce, County and State Health Departments, and the Kellogg Foundation, we were able to conduct a survey to evaluate our needs and estimate our necessary facilities.

I am not advocating that every community conduct a similar survey. I am suggesting only that you analyze your own community with the same attitudes. Let us see how our survey could apply to your community. We started out with our working committee: a shoe store owner; the wife of a psychiatrist; a real estate abstractor; a bond salesman; the owner of a business college; a housewife and civic leader; a local physician; and our secretary and only paid employee.

Let me point out that only two of the committee had any direct interest in health, those being a doctor and the wife of a doctor. This group was augmented with the services of our local public health officer, as well as two representatives of the State Health Department, all acting as advisers. To assure that we received full community backing, we invited representatives of some fifty organizations and clubs to act as our steering committee.

We designed our own questionnaire, enlisted the aid of 800 housewives, and surveyed house-to-house, 47 per cent of our county.

Our original intentions were to survey the hospital facilities of our county as they pertain to chronic illness and gerontology, but by the time we were through we discovered we had to know the whole story to know part of it. The various phases and agencies were so interrelated that we tried to cover them all.

We found that many services were handled by clinics or outpatient agencies; therefore, we obtained information about their services and facilities. Since we were interested in chronic illness and gerontology, we found that we would have to consider the services of nursing homes. Further—and I am sure you appreciate this—in becoming interested in care for the indigent and the aged, we became involved in public and private welfare, funds, trusts, and foundations. With all this, and ten months' labor, we finished our report, piling up about 35,000 hours of work. You may be wondering whether it was worth the time. We think so.

We found that, compared to national statistics on chronic illness of 18.5 per cent, we rated 8.5 per cent—which at first appeared excellent. However, we found that our aged population, many of whom had come to this climate for health reasons, were burdened with much more chronic illness than national figures would indicate. Against the

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Mr. Whetstone is chairman, El Paso County Health Survey, Colorado Springs, Colo.

This paper was presented before a Joint Session of the National Conference for Health Council Work and the Health Officers and Public Health Education Sections of the American Public Health Association at the Eighty-Fourth Annual Meeting in Atlantic City, N. J., November 13, 1956.

national figure of 40 per cent, we found that 56 per cent of our aged population were affected. Since our aged population will very likely double in another 12 years, this is one of our planning problems.

While we are on this age group, let me elaborate. We found that our coverage of medical and hospital expenses by insurance plans was generally quite good; however, as the age increased illness increased, the number of persons under doctors' care decreased, and insurance coverage decreased. In the older age group, more than a fifth are chronically ill without coverage, and with little means to satisfy their needs. Maybe professional people know that, but we did not.

As for the military population: Fort Carson maintains a hospital with a capacity larger than our own three local general hospitals. One would think that this would simplify our local problems; however, we found that many of the military people and their dependents sought our local physicians and community facilities for their health needs. Of the military people hospitalized in the past year, 27 per cent were admitted to our local hospitals. There is a strong possibility that we may have to assume an even greater load if a proposed bill denying military dependents use of base hospital facilities passes Congress.

To illustrate this problem: Last year, total births in the county amounted to 3,931, of which 46 per cent were delivered at Fort Carson. If all these births had occurred at our three local hospitals it would have meant a theoretical average occupancy in the maternity sections and nurseries of 98 per cent. This is obviously impossible in practice. With our present local average occupancy in maternity sections of some 50 per cent we still have some hanging on nails occasionally. It seems to be an epidemic no one wishes to curb.

We also found that many of us had a chance to survive the dread diseases of "6 out of 10" this, "5 out of 10" that, or "7 out of 10" something else, and actually die of old age. We found, in order of maximum occurrence, our most important chronic illnesses were arthritis, heart disease, high blood pressure, asthma, blindness, accidents, kidney and bladder diseases, mental and nervous diseases, deafness, and varicose veins. Maybe you are disappointed in that unpretentious list. We used this definition of chronic illness: either a handicapping condition or an illness necessitating hospitalization for 30 days or more. Yes, we found many of the popular "fund-drive" diseases, but they were considerably less than those I have named.

We found some rather unusual cases, too: we found that, with one woman, pregnancy was a chronic illness—she having endured this disease for five years. We also found three cases of hemophilia in females. These "findings" were made because all of our survey workers were ordinary citizens and had had no previous experience along this line. On the other hand, our workers knew many of the people they surveyed personally and consequently many conditions were reported which otherwise would have escaped a professional surveyor.

Now, in considering our facilities, we found that by using indexes based upon our experience in length of stay, days of care per thousand, and so forth, we would need an additional 70 general care beds by 1960. This is already being accomplished through expansion of one of our local hospitals. We also found that our nursing homes were providing a service as homes for the aged. They are unable to supply much medical or nursing service because of the patients' inability to pay for such care. An aged person requiring medical and nursing services must therefore pay the relatively high expense of general hos-

pital care or burden his relatives with his care—which is the situation we most commonly found. With this in mind, we are looking at the possibility of a "chronic disease hospital" type of facility. This is a problem that need not be explained to this group. We further found that our clinics were equipped and staffed to handle almost any problems other than maximum capacity. However, they were located in such a variety of places for related services that only the strong of heart and back could utilize them.

All in all, we made 43 recommendations to our community for improvement of its health and related services. Of these recommendations, several are on their way toward accomplishment.

¶ We recommended a "voluntary health insurance plan expanded to meet the needs of the older handicapped." The Colorado Blue Cross is presently considering this type of insurance coverage.

¶ We recommended a sheltered workshop as a vital need in the rehabilitation of the handicapped. Upon our request and with assistance in obtaining a location, Goodwill Industries has opened such a shop and is obtaining the full cooperation of the community.

¶ We recommended a more adequate system for indigent care. The El Paso County Medical Society has assumed responsibility for this need, and they have accepted our recommendation for a further study of our clinic needs and facilities.

An example of this situation was found in the case of an elderly woman who had been without both legs for many years, and was therefore confined to a wheel chair. When one of our survey workers found her she had in the closet a pair of legs which had been given to her by one of the local agencies four years previously. This agency had funds for the legs, but not the knowledge to teach her how to use them. By contacting the proper agency and arranging transportation, our secretary coordinated the efforts of the community and helped this person walk for the first time in many years.

¶ We recommended a central coordination of all public, private, governmental, national, state and local health welfare, recreation, character-building agencies, clinics and organizations operating in El Paso County. All through our survey, our office secretary acted as a referral center. It was quite apparent that here in Colorado Springs we had an efficient health department and nearly everything we could ask for in facilities. Yet the facilities were so divided and the services so uncoordinated as to interests, national or local administrative control, sources of income, animosity, and so on, that none knew exactly what the others were doing. With the help of the Kellogg Foundation, we are presently setting up our office and organization to accomplish this goal of efficiency.

Well what did we do? Just educate ourselves, the citizens? What better purpose then to educate the people? But, we did more than that, we helped educate the public health officials! We found some "Missing Links" of which they were not aware. Sometimes one may be too close to the forest to see the trees.

Let me leave one other question with you. You are tax-supported. How many of your allied agencies are supported by contribution dollars? What would happen if the contribution were cut in half? Would public health suffer? Should we be scrutinizing our operations and striving for maximum efficiency? A businessman would retain nothing unless it is productive.

What about lay people doing such technical, professional work? A year ago most of us on this committee did not realize that an organization such as the American Public Health Association existed. Why did we do this work?

As a community service. Did we get interested in public health? Yes, to better our community.

Do you know workers in your community you would like to have interested in your job? I will lay you five-to-one odds that they can get a job done in your area that you can not get done for various reasons. Also, they are going to look at your problems without preconceived ideas or solutions. They will have different opinions because, being independent, they do not have a governmental or bureaucratic approach but rather a business approach.

Look at your own community—it is changing. Analyze and compare it with available statistics. Do not be afraid to ask for citizen support. Remember it is their community, too.

NOTE: Copies of the complete report may be obtained by writing to: Health Survey, Chamber of Commerce, Midland Building, Colorado Springs, Colo. Please enclose five cents for postage.

A New England Capital Fluoridates

The Metropolitan District Commissioners of Hartford County, Conn., on June 3 voted 13–8 for fluoridating the greater Hartford water supply without calling for a citizens' referendum vote. This action was the climax of a six-year discussion of the issue during which time numerous ballots by the 22 commissioners ended in a tie. It is expected that fluoridation will begin within two years.

The capital city of Hartford and a number of surrounding towns with a population of about 350,000 will be affected. Connecticut thus joins three of its sister New England states—New Hampshire, Rhode Island, and Vermont, whose capital cities have a fluoridated water supply.

Day-by-Day Response of Vaccinated Chimpanzees to Poliomyelitic Infection

HOWARD A. HOWE, M.D., F.A.P.H.A.; with the technical assistance of WALTER O'LEARY; WILLIAM BENDER; MARY KIEL; and ALBERT FONTANELLA

Because the experimental animals used here respond to poliomyelitis infection similarly to the response in man, the quantitative findings of the rise and fall of virus in relation to antibody in the vaccinated animals explain many of the phenomena observed in human vaccination. An important contribution.

This paper extends some preliminary observations that were presented to the American Public Health Association Annual Meeting in November, 1956; however, it must still be regarded as a progress note, since limitations of space restrict complete documentation of all the findings on which the conclusions are based. The observations deal with the alimentary excretion of Type I poliovirus in seven vaccinated and seven control chimpanzees following oral challenge with this virus. A particular effort has been made to quantitate the rise and decline of virus in relation to the level of serum neutralizing antibody.

The vaccinated animals received three or more 1 ml doses of commercial trivalent formol inactivated poliomyelitis vaccine supplied through the courtesy of the National Foundation for Infantile Paralysis. The experiments were begun in 1954 with the low potency preparations then available, but subsequently the animals received a booster dose on February 22, 1955, of a somewhat better preparation kindly supplied by Eli Lilly and Company. Since this time much better vaccines have become available, but these were the best obtainable at the time. On March 21, 1955, the chimpanzees received an oral challenge of Brunhilde cord virus (ca 25,000 PD50). Throat swabs and sera were collected daily for the first 10 days following exposure and somewhat less frequently for the following two weeks. Two swabs were obtained and stored individually from the tonsillar areas of each animal, while stools of approximately alternate days were pooled as weekly specimens (collections on Monday, Wednesday, and Friday).

All the materials for virus assay were suspended in a menstruum composed essentially of balanced salt solution, to which had been added 0.5 per cent lactalbumen hydrolysate and 0.12 per cent crystalline bovalbumen.[1] In some cases 2 per cent calf serum was also included. Stools were diluted at 1:3 before clarification in the Spinco centrifuge at 34,000 x gravity for one hour; swabs were placed in 2 ml of balanced salt solution at collection to be eluted later and similarly clarified without further treatment. All specimens were tumbled overnight at 4° C with 20 per cent anaesthetic ether. After settling, the top

The authors are associated with the Department of Epidemiology, Johns Hopkins University, Baltimore, Md.

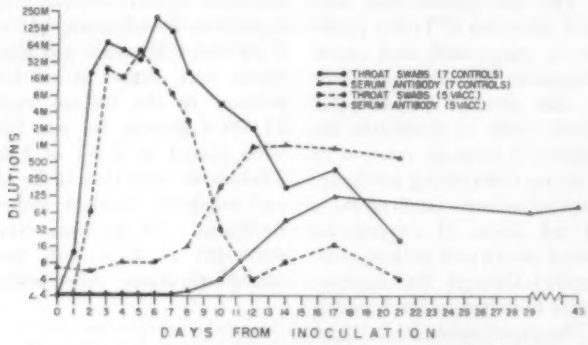
This paper was presented before the Epidemiology Section of the American Public Health Association at the Eighty-Fourth Annual Meeting in Atlantic City, N. J., November 14, 1956.

layer was removed and discarded, while the balance was freed from ether by evaporation at 4° C and used for inoculation. Blood serum was obtained at approximately the same times as the other materials in the routine manner. Everything was then stored at — 40° C until use. Virus isolations and neutralization tests were subsequently carried out in cultures of rhesus monkey kidney cells (monolayers for stools and the growth inhibition test for throat swabs and sera).

Starting at 1:9 to avoid toxicity, serial twofold dilutions of the clarified stools (in the saline medium) were inoculated into two monolayer kidney cell cultures for each dilution. The eluate from throat swabs was inoculated without further dilution, 0.25 ml being added to 0.5 ml of kidney cell suspension. Neutralization tests were carried out against 100 ID 50 of Connaught Standard Type I virus with twofold serum dilutions and two tubes per dilution. The experiments were terminated in seven to 10 days, depending upon the rate of cell growth in the uninoculated controls. End points of the cell inhibition test were checked microscopically and cell monolayers were studied daily for cytopathogenic changes. With few exceptions the virus assays were repeated two or three times. Passage and typing of the highest dilutions which produced cell destruction were carried out in most virus isolations.

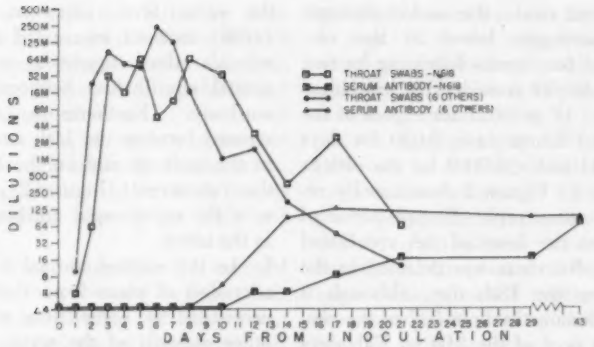
Following booster vaccination the maximal Type I serum neutralizing antibody shown by the animals ranged from 1:4 to 1:1,000 with a median of 1:8. (All were without demonstrable antibody initially.) At the time of challenge one month later there was little change.

As the data accumulated it was clear beyond doubt that five vaccinated animals with serum antibody levels averaging as low as 1:6 at challenge acquired alimentary infections, but carried virus in relatively high titer a much shorter time than did the controls. It was also evident that the highest titers reached by the vaccinated animals were, with the exception of one day, clearly lower than those observed in the controls. Conversely, two animals in the series with prechallenge titers of 1:64 and 1:1,000 failed to show demonstrable



Virus end points were obtained by serial two-fold dilutions of original throat swabs. End points of serum antibody were derived from similar dilutions of serum against approximately 100 ID 50 of Connaught Standard Type I virus.

Figure 1—Average Titers of Type I Poliovirus in Throats and of Homologous Serum Antibody in Vaccinated and Control Chimpanzees After Feeding of Type I Virus



This chart is a partial breakdown of the seven control animals averaged in Figure 1.

Figure 2—Throat Swab and Serum Antibody Titer in Seven Previously Uninoculated Chimpanzees (N-618—A Slow Reactor, Compared with the Average of Six Others)

alimentary infection. These were consequently omitted from further calculations.

These differences are shown in Figure 1. They are particularly striking in the throat swabs on the 10th day following challenge. Here the average titer of the vaccinated animals dropped to less than 1:4, while the average of the controls was nearly 1:6,000. By the 14th day the average titer of the controls was depressed to 1:200, but still stood in contrast to the control titer of 1:8 ($P = <0.0001$).

It came as a surprise that the findings of the 10th day, as cited above, did not completely rule out chance, despite their apparent disparity ($P = 0.17$). The reason for this may be seen in Figure 2, which compares the rise and fall of virus titer in the throat of one animal (N-618), as compared with the average of the other six control chimpanzees. N-618 maintained a peak titer of 1:32,000 to 1:64,000 for 10 days, although toward the end of this period all of the others had declined to about 1:1,000. This case is particularly instructive and will be discussed later. When it is omitted, however, although the average control level for the 10th day was reduced to 1:1,000, it was still vastly different from the average of about 1:4 shown by the vaccinated group ($P = <0.0001$).

For the first seven days (with the exception of the fifth) the average titers of the vaccinated animals were definitely lower than those of the controls (Figure 1), but because of great variability in the time at which the individual animals reached peak titers, the standard errors of the means were quite large. Consequently the values of P ranged from 0.2 to <0.0001 with the median at 0.043. While sampling errors are not ruled out in all of the individual determinations, the fact that control averages were strikingly lower on 10 of 11 days constitutes strong corroborative evidence that the differences between the two groups were real ($P = <0.0001$).

Fecal pools containing a week's collection (three specimens) showed the same type of difference between the vaccinated animals and the controls, viz., lower virus titer and abbreviation of the period of virus excretion in the former. These are shown in the bar diagram of Figure 3. As with the daily averages

of the throat swabs, the weekly averages were consistently lower in the vaccinated for four weeks following feeding of virus, despite considerable individual variation. (P is 0.027 for a pool of the second and fourth days, 0.020 for days seven to 11 and <0.0001 for the 14th to 18th days.) Figure 3 dramatically reflects the more rapid disappearance of virus from the feces of the vaccinated animals. No virus was detected in the latter after the 18th day, although it was still demonstrable in 5/7 of the controls in a pool of the 21st to 25th days and could still be isolated from two control animals on the 29th to 31st days.

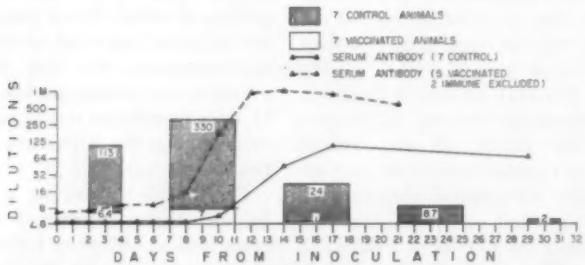
An apparent relationship between the decline of virus titer in the alimentary tract and the rise of neutralizing antibody in the blood serum is shown in all the figures. There are numerous reasons for believing that there exists a true inverse correlation between the two. These are detailed below:

¶ The serum antibody titer rose more rapidly in the vaccinated animals than in the controls and coincided with the fall of virus titer in the alimentary tract (both throat swabs and stool pools).

¶ The availability of daily specimens from the throat made it possible to show that the curve of declining virus titer crossed that of rising serum antibody at the same level (between 1:50 and 1:100) in both vaccinated and control animals, thus suggesting some fundamental equilibrium between virus and antibody. Furthermore, the curves crossed between the 14th and 17th days in the controls and on the 10th day in the vaccinated (Figure 2), coinciding with the more rapid antibody response in the latter.

¶ In the control animal (N-618) the excretion of virus from the throat was prolonged by comparison with the six other animals of the series. Thus, on the 10th day she showed a titer of 1:32,000, while the average of the others was but 1:1,000. Similarly on the 17th and 21st days N-618 showed titers of 1:2,500 and 1:64, respectively, in contrast to 1:50 and 1:13 for the remaining ones. No specimen was available beyond the 21st day. Although the curves of virus titer and serum antibody cross at approximately 1:48 on the 14th to 17th days for six controls, those of N-618 were not observed to cross, since in all probability the collection of throat swabs was not continued long enough to record it.

¶ The series contains two vaccinated animals that had acquired low levels of Type I antibody, but had none demonstrable at challenge. The limitation of



The stool pools represented collections over a week's interval, usually on Monday, Wednesday, and Friday. The first and last pools, however, contain only two alternate days.

Figure 3—Average Titers of Type I Poliovirus in Stool Pools of Chimps

space does not permit including them beyond the statement that these animals showed some characteristics of both vaccinated and controls. Both developed maximal titers of virus in the throat (1:250,000) and showed a somewhat delayed rise of antibody characteristic of controls. Virus and antibody curves crossed at 1:48 between the 12th and 14th days.

¶ The only two animals in the series of 16 that did not become infected had serum antibody titers of 1:64 and 1:1,000, respectively at challenge. All of the 14 infected animals had serum titers ranging from <1:4 to 1:16 ($P = 0.004$).

It remains to mention one more finding which suggests the eventual attainment of an equilibrium between virus and antibody. In Figures 1 and 2 it may be seen that following the dramatic drop in virus titer between the eighth and 12th days virus did not entirely disappear and showed a small rise, even in the presence of high serum antibody levels (see particularly the vaccinated animals in Figure 1). Should these findings be corroborated by more extensive observations they will indicate an equilibrium between virus and antibody, thus providing an acceptable explanation for the persistence of immunity throughout life.

Summary and Conclusions

The presence of serum antibody induced by commercial vaccines clearly limits the duration and amplitude (titer) of alimentary infection with Type I poliovirus in chimpanzees. This animal appears to react to poliovirus in a manner identical with that observed in man.[2-9] At the same time it permits a more detailed and well controlled analysis of the rise and decline of poliomyelitic infection than is usually possible in a human population; however, it should be feasible to relate scattered observations on man to the more complete findings in chimpanzees.

The observations here described might be extrapolated to suggest that mass vaccination will appreciably affect the epidemiology of poliomyelitis, at least in certain segments of the population. The groups most likely to show a reduction in the risk of exposure (and consequent loss of booster effects through natural channels) are the upper income brackets of the temperate zones, and sparse, remote populations all over the world. But this chapter is still to be written.

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By Way of Thanks and Welcome

Through the generations historians have commented upon the ways in which what we call "good luck" has played a vital part in the fortunes of states and lesser institutions. When crises have risen to becloud the future, then it is that a leader providentially has appeared to carry the state or institution through until the emergency is resolved. Our own Association may count itself just such a fortunate institution. When failing eyesight made it no longer possible for the late Professor Winslow to continue his brilliant editorship of this Journal, our Association faced a very real and disturbing emergency, for the Journal is the voice of the Association and that voice must not be stilled even briefly.

In this emergency the Association sought the help of Professor Abel Wolman, a man already carrying far more than his share of administrative and consultative responsibilities. Upon his heavy schedule in the university he serves he had already allowed to be imposed active participation in important scientific commissions in this country as well as in surveys and consultative projects abroad. Despite these many responsibilities with their merciless demands on his time and energies, Dr. Wolman graciously took on the new burdens that editing this Journal imposes when the urgent call to help out came to him once again.

From the beginning he revealed his rare ability to induce other busy leaders in our varied field to share in the drafting of editorial policy and pronouncement—help for which he was quick to give generous credit. But always in this collaborative effort his own sound philosophy of public health has shown through to even out the stresses of differing opinion and to provide that balance of judgment so necessary in any editorial page.

The facility with which Dr. Wolman made his impress on the editorial policies of our Journal—through clarifications that often had to be hammered out while on a plane trip to a distant country or between long sessions of a governmental commission—is a continuing source for wonder on the part of all who worked with him. That remarkable facility was the product, in part, of his natural endowment wedded to his long experience in editing the Journal of the American Water Works Association.

Knowing a little of the breadth and influence of Dr. Wolman's contributions and the practical difficulties under which much of his editorship had to be carried on, we who have enjoyed his stimulating companionship cannot allow him to relinquish his editorial pen without a warm word of appreciation.

It is now more than thirty-one years since Dr. Raymond S. Patterson assumed his volunteer task of preparing the Annotated Bibliography. Tens of thousands of readers of the American Journal of Public Health across the world have appreciated these succinct digests so provocatively presented. His wide reading and his pithy comments have contributed in no small measure to the task of bridging the gap between the widely scattered writings of interest to public health workers and the individual reader. Since January, 1954, Dr. Patterson has served as Associate Editor of the Journal where he has been responsible for reading, selecting, and scheduling most of the manuscripts. As of August 1, 1957, he has asked to be relieved from these responsibilities but, at the earnest request of the chairman of the Editorial Board, will continue to prepare the Annotated Bibliography. Our cordial thanks to Raymond Patterson!

The Executive Board of the Association is pleased to announce that George Rosen, M.D., Ph.D., professor of public health education at the Columbia University School of Public Health and Administrative Medicine, New York City, will assume the editorship of the American Journal of Public Health effective August 1, 1957. Dr. Rosen has served as a member of the Editorial Board since February, 1948, and most recently as chairman of the Board. In addition to his professional competence in public health, medicine, and in the social sciences he has had extensive editorial experience with the Journal of the History of Medicine and in other capacities. A cordial welcome is extended to Dr. Rosen!

The Role of Labor in Community Health Education

✠ Organized labor's concern with the welfare of its members has been increasing steadily. From their early interest solely in hours of work, compensation, and the physical conditions of work, the unions moved on to concern with such additional improvements as vacation funds, sickness insurance, and hospitalization. Organized labor early took an interest in educating its membership about unionism, then for bettering themselves on the job or otherwise handling their personal problems. In recent years, this concern with personal problems has brought the unions into the community—first through the Community Services Committee of the CIO and now the Community Services Committee of the AFL-CIO. These committees have attempted to provide guidance so that workers will know where to turn in the community for any needed assistance.

Most recently, the advisory group of the AFL-CIO Community Services Committee has been exploring the role labor might play in community health education. This is a great step forward. Although concern for the quality and quantity of medical care is important, it is equally or more important to help adult workers understand what they, themselves, must do to achieve and maintain a reasonable level of health.

In larger plants, industrial medical departments have been concerned with the physical status of each worker and emergency service for accident or sudden illness. In addition, plant safety rules and other measures have been tried to eliminate the environmental hazards of the job. Each contact the worker has had with a physician or nurse in an industrial medical department has probably contributed something to his health education. In addition, the plant will usually have exhibited

health posters and distributed health leaflets. This is all to the good, but the industrial setting is not the proper or primary place for health education. Yet figures recently released by the Industrial Medical Association show that less than 1 per cent of work absences are due to industrial injuries. Approximately 70 per cent are due to respiratory and digestive diseases. Obviously, much still remains to be done to protect the health of our working people.

As the writer sees it, "given a reasonably good inheritance and a safe and sanitary environment, the achievement and maintenance of health is, by and large, an individual responsibility." The main question is how to educate adults to accept this responsibility. No one can do for the individual what he must do for himself. What he eats, his personal hygiene practices, his attitudes toward other people, his use of medical services, are all dependent upon the individual's own initiative.

Since guidance on the job cannot be expected to do more than contribute to a worker's knowledge of health, the major task rests in the community. Here we have the efforts of the various voluntary and official health agencies to educate the adult population. These efforts are all or almost all agency-centered, concentrating on problems of special interest to the agency. This has met with some success in the past, but it has placed the worker and his union in a somewhat passive position. Now it is intriguing to find that the unions are indicating a desire to shift from the role of receiving what their communities offer in the way of health education to an active and aggressive part in seeing what labor itself, with the cooperation of health agencies, can do for its members.

Labor has had unusual success in the field of labor education. Now it is assuming a responsibility of greater dimensions, namely the health of its members and the need to educate them to improve their health and that of their families. For the fulfillment of this idea, organized labor must accept a greater share of community responsibility, to see that the services and facilities needed for maintaining health are available. Labor leadership must become better informed about community health resources, community health problems, as well as the steps which can be taken to cope with such problems.

Labor can make an outstanding contribution to community health education. Many have felt that an effective adult health education program can be developed within the ranks of labor. Now with the leadership shown by the AFL-CIO Community Services Committee, we can hope to see the development of active and effective programs to this end.

(The Journal is indebted to Mr. Sol S. Lifson, Director of Health Education, National Tuberculosis Association, for assistance in the preparation of this editorial.)

Credit Lines

The Journal cannot furnish copies of items mentioned in Credit Lines. Please send requests to the addresses given.

Promoting the Health Careers Film

The "Health Careers" film of the National Health Council's Health Career Horizons Project has been out about a year. It has been previewed and in use experimentally sufficiently so that there is a sizable body of opinion of its values and the uses to which it can be put. Thus the Project has prepared a folder on "What Counselors Say About the Health Careers Film." It tells how the film came to be, how it is being used, and how it may be borrowed or bought. The folder is available free from Health Career Horizons, 1790 Broadway, New York 19.

Health Career Horizons has also prepared two pamphlets as aids in using the film. One is for counselors and teachers in secondary schools and includes in film-use suggestions on "Health Careers"; the other is for discussion leaders and program chairmen giving film-use suggestions and background information.

"Assurance of a Fuller Life"

"A series of booklets designed to help you gain assurance of a fuller life," is the way the Medical Department of the Equitable Life Assurance Society of the United States describes a series of five booklets and 15 supporting posters.

The subjects are "Vacationing," practical ideas about health and safety for the family's vacation; "Kitchen Sense," creative management for health and safety in a more livable kitchen; "A Third of the Day," making the most of personal health resources at work, rest, play; "Looking Forward to School," ways to help your child grow in health, play skills, responsibility; "Pets," choosing, training, keeping pets for healthier and safer companions.

Both booklets and posters are well printed on excellent paper in varied colors and illustrated, often humorously. And they are to be had for the asking. They are an excellent addition to available health education material. Equitable Life Assurance Society of the United States, 393 Seventh Ave., New York 1.

Housing Control and Social Factors

Between 1953 and 1956 successive sectors of rental housing were removed from rent control in New York State. "People, Housing and Rent Control in Syracuse, November, 1956" is one of a series of analyses of the effects of decontrol published by the New York Temporary State Housing Rent Commission. Other reports have summarized studies in Albany, Buffalo, Rochester, and Schenectady.

Data for Syracuse, collected in April, 1956, reflect the impact of the July, 1955, decontrol of one- and owner-occupied two-family houses. The City Housing Authority collaborated in the study to provide detailed information on the amount and characteristics of substandard housing and its occupants.

The study indicates that the greatest contrasts between uncontrolled and still controlled housing are reflected in family income, age, family composition, and size and age of dwelling units. The sector still under control represents for the most part smaller, older, multifamily

units of substandard housing which command lower rents. Since Syracuse still has a serious shortage of rental units, the pronounced concentration of older persons, one-person households, and households with female heads in the controlled sector, complete rent decontrol would pose serious problems the report indicates.

State of New York, Temporary State Housing Rent Commission, Albany.

Minnesota's Chronically Ill

"The Aging and Chronically Ill—Minnesota, 1900–1954" in two volumes is the work of the Division of Local Health Administration, Minnesota State Health Department. Here are the facts as to the age distribution of the state's population and the mortality and morbidity data for the various types of chronic diseases.

In mimeograph form the two volumes total about 350 pages. The second volume of 275 pages consists of an appendix of statistical tables. Minnesota Department of Health, University Campus, Minneapolis 14.

Dental Health Education Aids

Bristol-Myers new dental health education aids include "My Toothbrushing Book" of four pages. A "Smile Please," an action song with pictures tells how to brush teeth. Pictures of tooth building food, a story, and a toothbrushing diary complete the "book." A charming poster accompanies this unit for small children through the third grade.

Also available is a booklet for teenagers. "Brighten Your Future," part of a free dental health teaching unit that includes a wall chart and a teacher's manual.

These materials are available free from Educational Service Department, Bristol-Myers Products Division, 45 Rockefeller Plaza, New York 20.

Laboratory Safety Manual

The Fisher Scientific Company combines its current catalogue with a "Manual of Laboratory Safety" beginning with the 10 commandments of laboratory safety. Prevention of accidents (and you'd be surprised how many possibilities there are) and laboratory first aid and fire fighting. Included also is a list of references on laboratory safety, including films and film strips.

Manual of Laboratory Safety, Bull. FS 201, Fisher Scientific Company, 711 Forbes St., Pittsburgh 19. Free.

More Fluoridation Evidence

What is called "a new approach toward community education for fluoridation" has been used by the Connecticut Advisory School Health Council representing the State Health and Education Departments. This is a "Suggested Teacher Reference Guide on the Subject of Fluoridation of Public Water Supplies" distributed to superintendents of schools and boards of education throughout the state and indicated as appropriately used during Children's Dental Health Week.

It defines fluoridation, gives the story of how it came to be a dental health aid, discusses its legality, the extent of its use, and includes a bibliography. This should be a valuable aid in helping the coming generation—and their parents—know the facts rather than the fancies about fluoridation.

Additional copies for teacher reference can be obtained through the State Department of Education, Hartford. No information on out-of-state distribution.

Rehabilitating Mentally Handicapped

A cooperative mental health plan in Indiana aims at reducing the return to hospitals of one out of every two re-

leased mental patients. Under the plan all agencies and hospitals concerned with rehabilitation of the mentally handicapped will coordinate their work so that a patient at the time of discharge will have these guidance and rehabilitation facilities at his call.

The plan grew out of a three-day institute of 250 Indiana officials which was chaired by Durand F. Jacobs, Ph.D., chief, Vocational Counseling Service, Veterans Administration Hospitals, Marion, Ind. Plans were drawn up to coordinate planning, particularly in matters of reports and interagency correspondence. A central reporting exchange has been set up for the use of federal, state, and local institutions "unique in the mental health field." A smoother transition to community life for the patient, avoiding duplication of effort, and complete information in the hands of community agencies that take over the patient's posthospital rehabilitation are the goals of the plan.

District Health Conferences

The Pennsylvania Medical Society has developed a new technic for discussion of some of the public health problems common to the various county societies in the state—the councilor district level meeting. A recent one is described in the April "The Physician and Public Health," the Monthly Newsletter of the Medical Society. Here were gathered County Medical Society councilors and representatives of a number of counties, devoting half a day each to an up-to-date report on polio in the state and to stimulate interest in county health departments.

For the latter discussion the chairman of the Board of Trustees of the state society keynoted with "The Importance of Public Health to the Medical Society of Pennsylvania," while the president of the state society stressed the desirability of professional participation in the establishment of county or district health departments. A number of panelists were from counties that had organized or were considering proposals to organize health departments.

Pennsylvania is a state in which there has been practically universal support by the medical profession of efforts to develop county health departments.

The same issue of "The Physician and Public Health" summarizes the current situation in 23 counties where there is stirring some preparation for a 1957 referendum in four, survey of health facilities in 11, and "some interest apparent" in nine.

Health Education in Industry

A study of existing health education programs in a representative sample of Massachusetts Industries has been made by the Health Education Unit of the Harvard School of Public Health. The purpose of this fact-finding study was to determine the status of health education in industry and some of the factors that impede or facilitate its development.

The sample studies include 25 plants with not less than 100 and not more than 1,000 employees throughout the state. The study was carried on largely by interview with plant personnel managers, with local union officers, and with local agency personnel related to community health education programs.

The 10 major conclusions of the study have immediate relevance to the agencies that are carrying on community health education designed either specifically for the industrial worker or for him as a part of the general population. "The most patent conclusion," says the report "is that in-plant health education activities of the kind currently offered by community agencies have low interest and appeal to either management or union personnel. The multiplicity of voluntary health agencies, with their separate fund raising campaigns and

programs, constituted a major barrier to acceptance of in-plant health education activities and created highly charged negative attitudes in a majority of management and union respondents. The need for interagency cooperation in planning and carrying out in-plant health activities was vocalized repeatedly not only by management but by the agencies themselves."

The author of the report is Marjorie A. C. Young, Dr.P.H. "A Study of Health Education Programs in Massachusetts Industries" was made possible by a grant from the John Hancock Mutual Life Insurance Company whose home offices are in Boston.

A Survey in a Pennsylvania County

The Health Survey Report of Montgomery County, Pa., has just been published. This was basically a citizen survey sponsored by the County Medical Society with assistance of the County Tuberculosis Association, the District Health and Welfare Council, Cancer Society, and Heart Association. It was based on the "Guide to a Community Health Study" of the American Public Health Association with the addition of a seventh section on civil defense.

There are separate recommendations for each of the seven sections. The thread that runs through them all is inequality in performance in various parts of the county, whether the service is environmental sanitation, reporting of communicable diseases, maternal and child services, or others. The one general recommendation is for "a more effective framework within which public health services can be offered to all the people . . . so that higher standards can be made uniform in every community. The most effective means of achieving this objective . . . is by the establishment of a county health department."

The report has been enthusiastically accepted by the Medical Society and referred to the county commissioners with the recommendation that they take immediate steps to establish a county health department by resolution.

Graphic Story of Arteriosclerosis

In "What Are Facts About Arteriosclerosis? No. 1 Killer," the National Health Education Committee has performed a service for civic leaders and federal and state legislators. In a beautifully printed brochure, the facts about this disease are marshalled, the rate of deaths from it, the economic loss caused by it, the extent of research being carried on, and the leads being developed that need to be followed in further research. The material, much of it illustrated graphically, is based on data supplied by the American Heart Association, National Heart and Mental Health Institutes, National Office of Vital Statistics, and other governmental and private agencies. National Health Education Committee, 135 E. 42nd St., New York 17. Free.

Annual Reports

"First Annual Report 1956" is the first report to the governor and Legislature of the New York State Inter-Departmental Health Resources Board which began operating in April, 1956. It deals with those physical and mental health problems that cut across the interests of several departments of the state government, such as health, welfare, mental hygiene, hospital survey and planning, education, labor, and correction.

The programs that the interdepartmental board is empowered at the outset to plan, coordinate, and finally turn over to the appropriate permanent state agency are those dealing with alcoholism, rehabilitation, health services for the aged, and noninstitutional services for mentally retarded and emotionally

disturbed children. This first report outlines what has been done in each of these four areas. Room 1212, 11 N. Pearl St., Albany 7, N. Y.

"The Health Department" is the title of the report of the Montgomery County, Md., Health Department. It is even more a description, for the 250,000 citizens of the county, of the department's services and the way they are carried out than it is an annual report.

The short description of the department is that it "diagnoses the county's health problems and treats them." This is a very down-to-earth story that ought to make the citizens fully aware of what services are available to them and how their money is being spent.

The department is responsible for school health services. Its 1956 budget was nearly three dollars per capita, nearly 80 per cent of which represented county appropriation. In this county there is approximately one nurse per 4,200 of population and one engineer or sanitarian per 24,000. This is pointed out to indicate the variations from accepted average ratios that are and should be made by local health officers in relation to their own community's situation.

One addition might be made to this excellent report—the names of the staff to personalize the department even more. Not even the health officer is mentioned. He is William Jackson Peeples, M.D., M.P.H.

The Nutrition Foundation, Inc., has recently published the 1956 report of the executive director. In effect this report is a summary of where we are in the science of nutrition, "the science of food and its relation to health." The current trend of nutrition research focused increasingly upon the fats and oils it is prophesied "will serve the public constructively, as in earlier periods of rapid advance with respect to the proteins, minerals, sugars, and vitamins. Such states of interest are not primarily fads, but represent times when new avenues of advance have been opened and catch the imagination and drive of young research scientists."

During the year eight new research grants and 23 renewals were made totaling $346,850. All grants for basic research and for educational projects during the 19 years of the grant program have totaled three and three-quarter million dollars about 45 per cent of which was devoted to research in the origin, function, and measurement of nutrients and metabolites, and another 25 per cent to public health problems in nutrition.

"Virginia's Health, 1954–1956" is a good example of effective production by offset. Both the illustrations and the type are clear cut and pleasing to the eye. Besides, the two-color report has some real accomplishments to report. The two-year accounting is well designed as "a brief, illustrated presentation primarily for the general public."

"National Tuberculosis Association" is the 52nd annual report of this Association which covers the country through some 2,800 state and local associations, about 40 per cent of which are professionally staffed. This is neither a sob-sister nor a self-adulatory report, but rather a sober, reasoned, perhaps philosophical, discussion of the problems still ahead. There is a brief description of the organization and its various activities such as the seal sale, the development of standards, field service, grants-in-aid, the annual meeting, the bulletin, the health education material prepared, its affiliated associations, and its two related organizations, the American Trudeau Society representing its medical section, and the National Conference of Tuberculosis Workers, independent but closely related. National Tuberculosis Assn., 1790 Broadway, New York 19.

Books and Reports

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

The Practice of Dental Public Health. Proceedings of the Fourth Workshop on Dental Public Health, April 2–6, 1956. Ann Arbor, Mich.: University of Michigan, Publications Distribution Service (412 Maynard St.), 1957. 198 pp. Price, $3.00.

This document represents the proceedings of the Fourth Workshop on Dental Public Health held at the University of Michigan, April 2–6, 1956. Its subject was "Objectives and Evaluation of a State's Dental Program." These published proceedings reflect an obviously stimulating and particularly fruitful conference. The publication will be of great interest and real value beyond the scope of the workshop title.

The conference involved five areas of discussion: (1) dental program objectives, (2) indexes of oral health, (3) statistical technics for dental data, (4) terminology, and (5) communal self-appraisal of oral health conditions. Each area was the subject of one or more formal background lectures by appropriate authorities. For the most part these are sound presentations containing valuable information.

But what makes the publication particularly useful are the five committee reports. The committee which considered indexes of oral health concisely presents criteria for a useful index, a valuable chart comparing the applicability of proposed indexes, and an evaluation of available indexes. Another committee report includes a guide for planning studies and assembling data in this field. The report on terminology is a useful reference item, particularly for health officers and other nondentists with an interest in dental health. The report on community self-appraisal likewise contains sound material of real usefulness.

In short, this publication contains information about public health dental problems and the approach of public health dentistry which is not available elsewhere in so concise a form. It is therefore recommended without qualification, not only for public health dentists, but for health officers, health educators, family dentists, and anyone with an interest in this field.

ARTHUR BUSHEL

Your World and Mine—Essays On Human Relations—By Halbert L. Dunn. New York: Exposition Press (386 Fourth Ave.), 1956. 94 pp. Price, $3.00.

This is not an ordinary book for review but an extraordinary collection of essays from cover to cover dealing with modern human relations. From a religious standpoint it resembles the Confessions of Saint Augustine and Meditations of Thomas a Kempis. From the humanistic side it recalls the essays of Huxley and Spencer. It brings to mind the familiar phrase: "Know thyself, presume not God to scan, the proper study of mankind is man."

After reading the introduction and first few sections this reveiwer could scarcely lay it aside on account of its deep interest, information, and helpfulness in interpreting the world in which we live today. The author unfolds in a logical fashion a number of practical ways in which he proceeds with: 1. Understanding Your World and Mine. 2. The Technique of Adjusting Your

World to Mine. 3. Application of the Technique of Adjustment. 4. Creative Destiny.

Proceeding through a number of delightful essays from the simple to the complex which lead to a "universal philosophy of living for mankind," Dr. Dunn comes to: "The Creative Spirit of man is penetrating the secrets of the atom and now is reaching outward towards the mysteries of the universe. The destiny of man flows from this creative spirit. Whether he will destroy himself as a civilized society or whether he will push forward in his conquest of knowledge of the universe depends largely upon his ability and willingness to shift his egocentric pattern, in which as an individual he finds himself the center of the world, to a sociocentric design, in which mankind as civilized society is the central focus." (Part IV, Essay 1.)

Dr. Dunn's wide experience in life, with a thorough background of education, travel, and association with students, gives to this book of essays a unique value of basic principles greatly needed in the troubled world today.

RICHARD ARTHUR BOLT

Problems of Aging—The collected reprints of the 19 lectures given at the 1955 Annual Graduate Fortnight of the New York Academy of Medicine —Edited by Robert L. Craig. New York: George Eliot (1302 Second Ave.), 1956. 240 pp. Price, $3.50.

We have here in one volume a symposium on some recent developments in the field of geriatrics in particular of gerontology in general. One does not have to be a specialist on the physical afflictions of the aging to find this collection a rich source of information on the aging process. Some of the papers are highly technical and a nonmedical minded reader would need to have a medical dictionary of the latest edition quite handy.

However, there are other more easily understood papers which the lay reader may read with profit. To mention only three—"What Is Aging?" by Albert J. Lansing, Ph.D., Emory University, School of Medicine; "The Psychological Aspects of Aging," by Ross McFarland, Ph.D., Harvard University School of Public Health; and Professor Howard A. Rusk and Michael Dasco of New York University, "Rehabilitation in the Aged."

The summaries which conclude most of the papers are what the busy but inquiring minded social worker will most likely read first, but he need not limit himself to that. There is plenty of enlightening material not only for him but also for the psychologist, sociologist, educator, and even the politician! Here is not only the "voice of experience," but the word of the expert.

RAYMOND P. KAIGHN

Retarded Children Can Be Helped—By Cornell Capa and Maya Pines. Great Neck, N. Y.: Channel Press, 1957. 159 pp. Price, $5.00.

Growing out of a two-part series on mentally retarded children originally written for Life Magazine, this stimulating book has captured the spirit of dedication which prevails in the many workers and parents it so realistically pictures. In it, photographer Capa and writer Pines have succeeded in relating the experiences of the modern day pioneers in the field for the benefit of the many struggling workers who follow.

In directing attention to the variety of solutions to the problems of the mentally retarded, care has been taken to use the finest available example of each type of facility to illustrate the story. The attitude is, therefore, one of optimism and the stories told are those of success and hope, replacing the despair, misery, and shame, so common to this problem in the past.

Each of the ten chapters depicts one

type of resource available to the retarded person and the ways in which one particular example of this type of facility has been developed and now operates. It emphasizes throughout the importance of an interested and informed lay public in aiding the already motivated parent and professional groups in overcoming the obstacles confronting the retarded individuals.

Although it is written for the general public, professional persons dealing with mental retardation, constantly or only occasionally, will enjoy its refreshing enthusiasm and the profuse and magnificient illustrations. It will renew their faith that "Retarded Children Can Be Helped." JOHN B. ATWATER

The Happy Life of a Doctor—By Roger I. Lee. Boston, Mass.: Little, Brown (34 Beacon St.), 1956. 278 pp. Price, $4.00.

Persons who are associated with, or interested in measures of public health (and who is excluded), should be interested in this volume. The author at the tender age of 33 was a founder of the Harvard School of Public Health and professor of hygiene at that university. He was an early treasurer and trustee of the American Public Health Association and wrote a textbook "Health and Disease, Their Determining Factors." In the present book the subjects of Harvard and health are dominant, but many radiating interests are expressed in the 33 short chapters. Vigorously expressed views on controversial subjects alternate with amusing behind-the-scenes events in academic or military affairs. As a professor and a member for 22 years of the Harvard Corporation he had working knowledge of four presidents of Harvard University. As president of the American Medical Association he wrestled with the problems of organized medicine. Overseas service in the first World War, plus 50 years of private practice in the Back Bay of Boston, provided a wealth of experience from which to draw.

At intervals throughout the book sharp barbs are launched against various unfair or unintelligent ways, but for the most part an amused and somewhat satirical attitude prevails. He generously shares the events, unhappy as well as happy, of his personal and family life. Only a portion of a man can show in his writings. We see in this happy doctor a broad and balanced view of medicine and life, pride in family, in his work and in himself, a philosophical if wry acceptance of a painful and disabling arthritis, candor, charity, intellectual honesty. Nine pages carry pictures of family groups and notable friends (president Eliot to Walt Disney). The bright color of the jacket of the volume, a Harvard crimson, matches the title. The title lures the purchaser to hours of happy reading.

WILLIAM G. LENNOX

Glaucoma—Transactions of the First Conference December 5, 6 and 7, 1955—Frank W. Newell, Editor. New York: Josiah Macy, Jr. Foundation (16 E. 46th St.), 1956. 251 pp. Price, $4.50.

At this first Macy conference on glaucoma the subjects of angle-closure glaucoma, central control of intraocular pressure, and of physiologic and pharmacologic factors influencing the resistance to aqueous outflow were discussed by 13 outstanding ophthalmologists, two psychiatrists, two internists, a cytologist, and a biophysicist-biochemist. Some of the eye physicians have studied glaucoma almost entirely in its clinical aspects, others through laboratory research. To one familiar with the problem the discussion is fascinating and most stimulating. To those not well versed in the concepts discussed it probably is frustrating to find the discussion of an idea started, interrupted several times by tangential comments,

and resumed several pages later. Had the kind of brief summary at the end of the discussion on angle-closure glaucoma been made at the end of the other discussions, the casual reader would find the report of much greater value. Those interested in an eye disease affecting more than a million Americans will want to have this volume.

FRANKLIN M. FOOTE

Physician-Writer's Book. Tricks of the Trade of Medical Writing—By Richard M. Hewitt. Philadelphia, Pa.: Saunders (W. Washington Sq.), 1957. 415 pp. Price, $9.00.

This is a unique volume written by the senior consultant of the Section of Publications of the Mayo Clinic. He is also associate professor of medical literature in the Mayo Foundation.

The author states his aim in preparing the book to aid the inexperienced, inexpert, occasional physician-author, whose material is written for other physicians. As he says, the volume is not a style book but the methods employed are those familiar to most who have studied English composition.

In spite of the fact that this is a comprehensive volume of 400 pages, thoroughly organized around the subject matter, it is surprisingly well written and provocative. Novices in medical writing will be astonished to discover what a complex field they have entered. They will be grateful to the author for his comprehensive coverage.

The last 75 pages of the book are given over to useful appendixes which significantly enrich the volume. All together it can be highly recommended.

REGINALD M. ATWATER

Mental Health Administration—By Jack R. Ewalt. Springfield, Ill.: Thomas (301–327 East Lawrence Ave.), 1957. 168 pp. Price, $5.50.

This small book discusses both the broad aspects of a community program of mental health services and the specific aspects of the administration of a mental hospital. In attempting such a broad scope the author necessarily has to limit himself to generalities, but the generalities are important.

To a worker interested primarily in public health the chapters on institutional or hospital organization, touching on such matters as floor materials, construction of walls, kitchen equipment, clothing control, etc., will not seem pertinent, but the chapters on community mental health programs, the functions of professions in a mental health center, and the integration of the hospital and community mental health activities are straight to the point. The reverse is also true. The hospital administrator may find the chapters on community programs rather far-reaching when he is faced with the multitude of problems involved in managing a hospital.

Both public health workers and professional hospital personnel should benefit from reading this book because it should broaden the perspectives of each group in the direction of the other.

HAROLD C. MILES

Notes on Atomic Energy for Medical Officers—By the Royal Naval Medical School, Alverstoke, England. New York: Philosophical Library (15 East 40th St.), [2]1956. 169 pp. Price, $4.75.

The intent of the volume as stated in its preface is to provide the basic knowledge that a medical officer (naval) needs in order to understand the short- and long-term effects of an atomic explosion and the dangers from other kinds of radiologic warfare. The volume is obviously thought through and planned carefully to have a logical sequence. It has, however, wide variation in its level of approach to the several disciplines of science it discusses.

Most, if not all, physicians have had

reasonably good classroom experience in classical physics and chemistry and have at least a nodding acquaintance with arithmetic and algebra to the extent that they know about the atomic theory, realize what radioactivity is, and how an x-ray tube operates. If they read the medical literature or even the daily newspaper they know of transmutation of matter. These are the subjects covered through page 50 and appear to be either too little or too much to accomplish the stated program of the volume—too little if the physician is weak in his basic science and too much if he is normally trained and oriented.

Pages 51 through 77 are valuable as they cover theory and practicality of atomic explosions.

From page 78 through page 124 there is a quite comprehensive discussion of medical-biologic injury from radiation. It is succinct and contains or refers to most of the facts in this field, plus the more widely accepted theories of biologic reaction to radiation injury.

Pages 125 through 133 discuss radiation monitoring instruments. For a field physician supported by engineers as monitors it probably is sufficient. For a medical officer having to assume full responsibility for evaluating radiation injuries it should contain greater detail as to how instrumentation is accomplished and what the meter readings mean in biologic terms.

The final section, pages 134 to 142, covers protection against radiation as adequately, perhaps, as it can be covered in a limited number of pages.

Several appendixes, a bibliography, and a glossary add to the practical usefulness of the book.

All in all this presentation of medical aspects of atomic and radiologic warfare is compact yet comprehensive. It is a useful addition to the library of any physician concerned in warfare or civilian defense. In addition some volume on instrumentation would be desirable. If the physician is hazy in his concept of modern atomic physics, an elementary text on this subject, too, would be in order to supplement the volume. SAMUEL C. INGRAHAM, II

A Belief in People—A History of Family Social Work—By Margaret E. Rich. New York: Family Service Association of America (192 Lexington Ave.), 1956. 190 pp. Price, $3.50.

Tracing the development of family social work in the United States from its origins in the thinking of community leaders to the period of a still burgeoning scientific attention to the helping process, this book represents a painstakingly detailed examination of the archives of the charity organization societies. Rooted in the concept of "helping people to help themselves," these societies are amply portrayed through a series of benchmarks characterizing a self-conscious progression from community services, per se, through the evolution of the profession of social work.

Facts are delineated austerely in a historical chronology abounding in names, places, and dates. Missed, therefore, is the excitment and illumination which could have been provided by something of the motivation and personalities involved. Absent, as well, except for oblique references, is any description of the broader elements of the social scene and their influences. For this reason the reader may well draw unwarranted conclusions regarding the role of the societies in stimulating government acceptance of welfare responsibilities and regarding these societies' part in the schisms between private and public social services. There is the additional danger that starkness of presentation serves the purpose of conveying only the societies' preoccupation with sound agency management and growth.

This may seem at times to override an interest in the client and in the necessity of relating a vast array of social information to the fuller context of the social milieu, its problems, and its more fundamental potential solutions.

Public health workers generally may be surprised to note that in the earliest days of this movement "were found workers in sanitation, housing and health education." Agency charters spoke of the obligation to promote research into the "causes and prevention of dependency." Social workers will find affirmation of the vitality of principles that have provided the durable base for present-day practice. All who are professionally concerned with helping people will profit from reviewing the systematization of the casework method as this lent itself to the establishment of a body of knowledge amenable for formal teaching, for the creation of a professional journal, and toward the foundation of councils of social agencies and the consultation services now a tacitly accepted part of the health and welfare scheme. ESTHER C. SPENCER

Fundamentals of Immunology—By William C. Boyd (3rd ed.). New York: Interscience Publishers (250 Fifth Ave.), 1956. 776 pp. Price, $10.00.

In the preface of the first edition of this text the author states his intent to present the fundamentals of the underlying principles of immunology without glossing over the difficulties of the subject or attempting to oversimplify by being dogmatic and ignoring opposing opinions on controversial questions. The present edition follows the same basic plan, but has been completely revised and rewritten with the addition of much new material. It is not a brief introduction to the subject with emphasis on historical concepts as the title might indicate; on the contrary it is in an exhaustive, and at times complicated, presentation of the current theoretic and practical aspects of immunology.

The volume is organized into 15 sections, many dealing with basic immunologic components, such as antigens, antibodies, blood genotypes, immunity reactions, and hypersensitivity; while others deal with such practical applications as autoimmunization and disease, and the use of immunologic procedures in preventing, treating, and diagnosing allergies and infections, bacterial, mycotic, or viral and rickettsial. The final section presents examples of the basic laboratory technics employed in modern practice.

The volume is attractively printed on an excellent quality paper, illustrated with many tables and figures, and each section contains an extensive list of references, chosen in many instances because they, in turn, contain more complete bibliographies on their specialties.

The body of positive knowledge concerning immunologic factors is increasing so rapidly that the appearance of this up-to-date presentation is most welcome. It should be of greatest interest to the two audiences to which it is primarily addressed, medical students and research workers; but all physicians and laboratory workers will find in it much information applicable to their problems. EDMUND K. KLINE

Proceedings of the Third National Cancer Conference—Sponsored by the American Cancer Society, Inc., and the National Cancer Institute, Public Health Service. Philadelphia, Pa.: Lippincott (East Washington Sq.), 1957. 955 pp. Price, $9.00.

This impressive volume of Proceedings is a written record of the general lectures and papers presented at the National Cancer Conference in Detroit, Mich., June 4–6, 1956. It is well edited and adequately illustrated. The subject matter, arranged in textbook fashion, represents current trends in thought and

work on the selected main topics; the data are well arranged under the headings of: cancer of the breast, prostate, lymphomas and leukemias, lung, head and neck, female genital tract, and gastrointestinal tract; special symposia devoted to chemotherapy and the end results in the treatment of cancer are included. The general lectures deserve particular mention by subject and author: Epidemiology as a Tool in Cancer Research (Lester Breslow); Radiation Neoplasia (Jacob Furth); Virus Etiology of Cancer (Wendell Stanley); Chemical Effects of Growing Tumors on the Host (Jesse Greenstein); Factors Influencing the Curability of Cancer (Fred Stewart); The Measurement of Morbidity (Harold Dorn).

The reader will notice a refreshing departure from the earlier volumes of the proceedings of similar conferences, both as to the type of book format, as well as the quality of print. The cost of this invaluable reference volume is but a small fraction of its real worth and should facilitate a wide distribution. It is recommended reading for all who are interested in the progress which is being made through cancer research in general, as well as in the current views on the special cancer topics, such as lung cancer and other major problems posed by malignancy. The text is readily understandable by persons familiar with medical terminology who have at least the equivalent of a master's degree in the basic sciences.

LEONID S. SNEGIREFF

The Care of the Expectant Mother —By Josephine Barnes. New York: Philosophical Library (15 East 40th St.), 1957. 270 pp. Price, $7.50.

This book is written by a British obstetrician who is on the staff of the Charing Cross, Elizabeth Garrett Anderson and Marie Curie Hospitals in London, England.

The book is divided into three parts. Part I deals with normal pregnancy, and includes the anatomy and physiology of pregnancy, the clinical examination of the pregnant woman, special investigations, advising the pregnant woman, and preparation for childbirth. There is an interesting chapter on maternity services in Britain, including those provided under the National Health Service Acts of 1946 and the National Insurance Acts.

Part II deals with abnormal pregnancy and includes multiple pregnancy, hydramnios, malpresentations, disproportion and trial labor, hemorrhage, hyperemesis gravidarum, toxemia, and induction of labor.

Part III deals with diseases complicating pregnancy and includes diseases of the pelvic organs, cardiovascular disease, diseases of the blood, respiratory diseases, diseases of the alimentary canal, renal diseases, diseases of the endocrine system, venereal diseases, diseases of the nervous system, and acute specific fevers.

On the whole, this book is well done and factually correct. It is clearly written and well organized. The drawings, photographs, and reproductions of x-rays are well done and clear. The format and index are adequate. It is intended for obstetricians, physicians in general practice, local-authority medical officers, midwives, and medical students. This reviewer believes that it will be helpful to all of these groups, as well as to nurses, both hospital and public health.

This reviewer recommends the book for those groups for which it was intended by the author, as well as for nurses. Parenthetically, it might be hoped that a second edition might include information on preconceptional care, maternal mortality and pregnancy wastage, and more complete information on the nutritional and emotional aspects of pregnancy.

HELEN M. WALLACE

Books Received

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ADOPTION OF INOCULATION FOR SMALLPOX IN ENGLAND AND FRANCE. Genevieve Miller. Philadelphia, Pa.: University of Pennsylvania Press, 1957. 355 pp. Price, $6.00.

ALCOHOLISM—A TREATMENT GUIDE FOR GENERAL PRACTITIONERS. Donald W. Hewitt. Philadelphia, Pa.: Lea and Febiger, 1957. 112 pp. Price, $3.00.

ALCOHOLISM, BASIC ASPECTS AND TREATMENT. Harold E. Himwich. Washington, D. C.: American Association for the Advancement of Science, 1957. 220 pp. Price, $5.75, $5.00 to AAAS Members.

AVIATION MEDICINE: AN ANNOTATED BIBLIOGRAPHY. Arnold J. Jacobius and Madeleine J. Wilkins. Washington, D. C.: Office of Technical Services, Department of Commerce, 1956. 204 pp. Price, $4.00.

". . . BAFFLING EYES OF YOUTH." John K. Donohue. New York: Association Press, 1957. 251 pp. Price, $3.50.

BCG VACCINATION AGAINST TUBERCULOSIS. Sol Roy Rosenthal. Boston, Mass.: Little, Brown and Co., Medical Book Department, 1957. 389 pp. Price, $7.50.

BLINDNESS IN CHILDREN. Miriam Norris; Patricia J. Spaulding; and Fern H. Brodie. Chicago, Ill.: University of Chicago Press, 1957. 173 pp. Price, $3.00.

BLOOD TRANSFUSION IN CLINICAL MEDICINE. P. L. Mollison (2nd ed.). Springfield, Ill.: Thomas, 1957. 587 pp. Price, $9.00.

CLINICAL TOXICOLOGY OF COMMERCIAL PRODUCTS. ACUTE POISONING (HOME AND FARM). Marion N. Gleason; Robert E. Gosselin; and Harold C. Hodge. Baltimore, Md.: Williams and Wilkins, 1957. 1180 pp. Price, $16.00.

DEXTRAN AND ITS USE IN COLLOIDAL INFUSION SOLUTIONS. Anders Gronwall. New York: Academic Press, 1957. 156 pp. Price, $4.00.

DIAGNOSIS AND TREATMENT OF CARDIOVASCULAR DISEASE. Vols. I and II. Edited by William D. Stroud and Morris W. Stroud, III. Philadelphia, Pa.: F. A. Davis, 1957. 1702 pp. Price, $35.00 the set.

DIE PERIPHERE INNERVATION. Emil Villiger and Eugen Ludwig. New York: Intercontinental Medical Book Corp., 1957. 210 pp. Price, $5.00.

DIRECTORY OF ORGANIZATIONS AND INDIVIDUALS PROFESSIONALLY ENGAGED IN GOVERNMENTAL RESEARCH AND RELATED ACTIVITIES 1956–1957. New York: Governmental Research Association, 1956. 60 pp. Price, $5.00.

ENCYCLOPEDIC GUIDE TO NURSING. Helen F. Hansen. New York: Blakiston Division, McGraw-Hill, 1957. 406 pp. Price, $6.00.

EPILEPSY-GRAND MAL, PETIT MAL, CONVULSIONS. Letitia Fairfield. New York: Philosophical Library, 1957. 159 pp. Price, $4.75.

FUNDAMENTALS OF MICROBIOLOGY. Martin Frobisher (6th ed.). Philadelphia, Pa.: Saunders, 1957. 617 pp. Price, $6.50.

HALF THE WORLD'S CHILDREN. A DIARY OF UNICEF AT WORK IN ASIA. S. M. Keeny. New York: Association Press, 1957. 254 pp. Price, $3.50.

HAZARDOUS VAPORS AND DUSTS IN INDUSTRY. Burgess H. Jennings. Chicago, Ill.: Ventilating and Air Conditioning Contractors Association of Chicago, 1957. 5 Parts.

HEALTH AND FITNESS. Florence L. Meredith; Leslie W. Irwin; and Wesley M. Station (3rd ed.). Boston, Mass.: Heath, 1957. 450 pp. Price, $4.20.

JORDAN'S TROPICAL HYGIENE AND SANITATION. W. Wilkie (3rd ed.). Baltimore, Md.: Williams and Wilkins, 1956. 408 pp. Price, $5.00.

MEDICINE AND WRITING. Russell L. Cecil, et al. New York: MD Publications, 1957. 65 pp. Price, $3.00.

MENTAL HEALTH RESEARCH UNIT, 1955 TECHNICAL REPORT. New York State Department of Mental Hygiene. Syracuse, N. Y.: Department of Mental Hygiene, Mental Research Unit, 127 pp.

MENTAL ILLNESS—A GUIDE FOR THE FAMILY. Edith M. Stern. New York: National Association for Mental Health, 1957. 95 pp. Price, $.50.

METHODS AND MATERIALS IN ELEMENTARY PHYSICAL EDUCATION. Edwina Jones; Edna Morgan; and Gladys Stevens. New York: World Book Company, 1956. 432 pp. Price, $4.25.

MOBILIZING RESOURCES FOR OLDER PEOPLE. PROCEEDINGS OF THE FEDERAL-STATE CONFERENCE ON AGING, WASHINGTON, D. C., JUNE 5–7, 1956. Washington, D. C.: Gov. Ptg. Office, 1957. 120 pp. Price, $.65.

NURSE NAMED MARY, A. Alexander Matthews. New York: Pageant Press, 1957. 155 pp. Price, $3.00.

PEDIATRICS. Edited by Donald Patterson and John Ferguson McCreary. Philadelphia, Pa.: Lippincott, 1957. 654 pp. Price, $14.00.

PERINATAL LOSS IN MODERN OBSTETRICS. Robert E. L. Nesbitt, Jr. Philadelphia, Pa.: F. A. Davis, 1957. 432 pp. Price, $12.50.

PERSON IN PSYCHOLOGY, THE. REALITY OR ABSTRACTION? Paul Lafittee. New York: Philosophical Library, 1957. 233 pp. Price, $6.00.

PRINCIPLES OF EPIDEMIOLOGY. Ian Taylor and John Knowelden. Boston, Mass.: Little, Brown, Medical Book Department, 1957. 300 pp. Price, $9.00.

PSYCHIATRIC ASPECTS OF SCHOOL DESEGREGATION. REPORT NO. 37. New York: Group for the Advancement of Psychiatry, 1957. 95 pp. Price, $1.00.

PSYCHOTHERAPY OF THE ADOLESCENT. Edited by Benjamin Harris Balser. New York: International Universities Press, 1957. 270 pp. Price, $5.00.

RABIES. METHODS IN LABORATORY DIAGNOSIS. Ernest S. Tierkel and Helen O. Neff. Atlanta, Ga.: U. S. Department of Health, Education, and Welfare, Communicable Disease Center, 1957. 42 pp.

RADIATION: WHAT IT IS AND HOW IT AFFECTS YOU. Jack Schubert and Ralph E. Lapp. New York: Viking Press, 1957. 314 pp. Price, $3.95.

RESEARCH RELATING TO CHILDREN. Bull. No. 4. Children's Bureau, Division of Research. Washington, D. C.: Gov. Ptg. Office, 1957. 151 pp. Price, $.75.

RHEUMATIC CHILD AND HIS WORLD, THE. IRVINGTON HOUSE CONFERENCE, NEW YORK, N. Y., NOVEMBER 13, 1956. AN ECOLOGICAL SPECULATION BY IAGO GALDSTON. New York: Irvington House, 1957. 68 pp. Price, $1.00.

TEETH, HEALTH AND APPEARANCE (4th ed.). Chicago, Ill.: American Dental Association, 1957. 47 pp. Price, $3.50.

UNDERSTANDING SURGERY. Robert E. Rothenberg. New York: McGraw-Hill, 1955. 620 pp. Price, $4.95.

WORK OF WHO, THE. 1956 ANNUAL REPORT OF THE DIRECTOR-GENERAL TO THE WORLD HEALTH ASSEMBLY AND TO THE UNITED NATIONS. New York: Columbia University Press, 1957. 233 pp. Price, $2.00.

ZOOLOGY. Alfred M. Elliott (2nd ed.). New York: Appleton-Century-Crofts, 1957. 746 pp. Price, $7.00.

A Selected Public Health Bibliography with Annotations

Saves Nurses' Time—Described here are the ways nurses aides (adult) and student aides help out the school nurses in a city educational system. The program has worn well, says the author of this Atlantic City Meeting paper.

BAUER, M. A. Adult and Student Aides as Part of School Health Services in Secondary Schools. J. School Health 27, 4:107 (Apr.) 1957.

Considering TV?—There are some good, practical discussions here of ways and means of telling a story you want told to the public via television. Not a complete how-to-do-it by any means, but there are worth-while hints you are not likely to find in more formal treatises.

BECKER, R. S., and BECKER, S. L. Planning a TV Program? Am. J. Nursing 57, 5:627 (May), 1957.

Did You Know?—That Americans harbor more trichinae than any other people? That they are hosts to numerous other unnecessary and unpleasant worms—trypanosomes and schistosomes to name but two families? At least one school outbreak of strongyloides infestation has been unearthed. Immigrants

from the warmer Americas and some of the two million returning tourists help swell the numbers and varieties of these unwanted parasites.

BIRCH, C. L., and ANAST, B. P. The Changing Distribution of Helminthic Diseases in the United States. J.A.M.A. 164, 2:121 (May 11), 1957.

By Piece or Head—Published and explained is the agreement by which a visiting nurse service is paid on a capitation basis, for care in a medical program—instead of on a fee-for-visit schedule. It saves a lot of paperwork—among other clear advantages.

DE BENNVILLE, A. K. The Capitation Rate as a Method of Payment. Nursing Outlook 5, 4:223 (Apr.), 1957.

Do Fairs Educate?—Three experiences in carrying out a city health fair become the bases for suggesting how, and how not, to plan and conduct such enterprises. "Although their value in building relationships and improving cooperation among community agencies seems evident, their educational values for the public are not certain." This is the measured conclusion.

DIXON, J. P. The Philadelphia Health Fair. Pub. Health Rep. 72, 4:341 (Apr.), 1957.

Athletes Foot Revisited—Two papers consider the spread of dermatophytes in the home, and through bathing places. They attempt to rekindle the perennial discussion of what to do about this nuisance. These British students of the problem seem not to go along with some of our American researchers who conclude that the infection is relatively benign and well-nigh universal.

ENGLISH, M. B. Trichophyton Rubrum Infection in Families (and) GENTLES, J. C. Athletes Foot Fungus on Floors and Communal Bathing Places. Brit. M. J. 5021: 744 (Mar. 30), 1957.

Hospital Epidemic—A resident and a nurse of a British hospital were admitted to the wards each with an obscure illness. Two weeks later over 70 members of the staff were similarly admitted. How the local health service helped out with the epidemiologic investigation of the encephalomyelitis is told in absorbing detail. (Quite incidentally, this item will introduce you to the spanking new dress in which this official organ of the Society of Medical Officers of Health is now appearing.)

GEFFEN, D. An Outbreak of Encephalomyelitis in the Royal Free Hospital Group, 1955. Pub. Health 71, 1:13 (Apr.), 1957.

Ominous Figures—In only seven years the relative risk of developing cancer increased 38 per cent in men and 28 per cent in women. Accordingly, one in four women and more than one in five men may now be expected to develop some form of the disease. A lot of other grim statistical findings are reported.

GERHARDT, P. R., et al. Trends in Cancer Incidence, Mortality and Probability in the State of New York. New York State J. Med. 57, 8:1387 (Apr. 15), 1957.

Pasteur Treatment—Though review articles are not customarily included in these inadequate annotations, this one seems so eminently useful (for preservation in your clipping files) that the rule is broken this once. Almost everything you need to know, about when to give this prophylactic treatment and what to use and how to use it, is set down in the fewest possible words.

HABEL, K. Rabies Prophylaxis in Man. Pediatrics 19, 5:923 (May), 1957.

To a Great Man—Add another and eloquent memorial to the final accounting of our late Professor Winslow, one which furnishes some new facets to the remarkably brilliant record of that leader of men and women leaders.

HISCOCK, I. V. Charles-Edward Amory Winslow. J. Bact. 73, 3:295 (Mar.), 1957.

Virus Progress—Out of an experi-

mental laboratory comes this new finding which would seem to have potentialities of future diagnostic usefulness. By plaque morphology polioviruses can be differentiated from certain of the ECHO viruses.

HSIUNG, G. D., and MELNICK, J. L. Morphologic Characteristics of Plaques Produced on Monkey Kidney Monolayer Cultures by Enteric Viruses Poliomyelitis, Coxsackie and ECHO Groups. J. Immunol. 78, 2:128 (Feb.), 1957.

German Measles — "The consequences of rubella are, statistically speaking, negligible in children and adults; they are large and often tragic for the embryo." It appears neither necessary nor feasible to plan for vaccination: the simpler method is to expose susceptible girls during epidemics—a public health activity of sorts.

INGALLS, T. H. German Measles and German Measles in Pregnancy. Am. J. Dis. Child. 93, 5:555 (May), 1957.

For the Record—Conclusion: "the first year results from the use of stannous fluoride-containing dentifrice at Bloomington, Minn., corroborate the original work of Muhler and associates in Indiana and show the effectiveness and safety of stannous fluoride used in an abrasive-compatible dentifrice for one year."

JORDAN, W. A., and PETERSON, J. K. Caries-Inhibiting Value of a Dentifrice Containing Stannous Fluoride: First Year Report of a Supervised Toothbrushing Study. J. Am. Dent. A. 54, 5:589 (May), 1957.

Dirty Hands Department—The answer to the question posed by the paper's title (below) seems to be: some are very useful under certain conditions, e.g., for the removal of tenacious dirt from workmen's hands when workmen are far from conventional washing facilities and their hands are frequently in need of cleaning.

KENT, H. How Good Are Waterless Hand Cleaners? Modern San. 9, 4:20 (Apr.), 1957.

More About Accidents—In Canada, too, accidents are among leading causes of death—the top cause between ages two and 39 years—and hence are to be accepted as a public health responsibility. A thousand home accidents requiring hospitalization were studied and three-quarters were considered preventable had reasonable care and thoughtfulness been applied.

LOSSING, E. H., and GOYETTE, R. B. Review of 1,000 Home Accidents. Canad. J. Pub. Health. 48, 4:131 (Apr.), 1957.

What America Eats—Major changes in America's diet are: a decrease in total calories; marked decrease in cereal carbohydrates; and increase in fats, especially hydrogenated fats.

MCCANN, M. B., and TRULSON, M. F. Our Changing Diet. J. Am. Dietet. A. 33, 4:358 (Apr.), 1957.

Department of Humor (Grim)—The vagaries of local rules for the support of old people in the cradle-to-grave socialism of (somewhat) Merrie England are devastatingly revealed in a letter to the editor written by a good friend of our Association. Though the letter is scarcely a scientific treatise, hence admissible to these columns, it carries more punch than most of the more solemn essays mentioned—and annotated—in this ancient vehicle for the edification of curious readers.

PAUL, H. Mink or Homespun? M. Officer 97, 14:195 (Apr.), 1957.

Childhood Tragedies—Progress in the "poison control center movement" is encouragingly recounted in this summary of the country-wide program. Provision of a 24-hour service has been a problem in some centers but most are meeting it successfully. Revealing discussions of various aspects of household and other accidental poisonings are parts of an inclusive symposium.

PRESS, E. Public Health Aspects of Poisoning (and four related papers). J.A.M.A. 163, 15:1330 (Apr. 13), 1957.

As Life Is Lived—Health education, the world over, must be geared to meet these conditions: more people live in mud huts than in any other dwelling; more travel on their own feet (or a burro's) than in any other way; most have a life expectancy less than half that of the United States; most mothers see half their children die before reaching maturity; more people get sick without a doctor's help available than have even rudimentary medical care.

TURNER, C. E. The Status of Health Education, National and International. J. School Health 27, 5:131 (May), 1957.

Second Best—Have you, too, mobile or isolated groups hard to fit into your planned prophylactic programs? It is suggested here that, if doses of antigens cannot be given at the usual times, or in usual amounts or frequencies, whatever immunization doses can be given will probably do a lot of good.

TUURI, A. L., et al. Adapting Immunization Programs to Special Groups. Pub. Health Rep. 72, 4:283 (Apr.), 1957.

In Effect, Go Slow—In the light of present conjectures and limits of information about unsaturated oils and serum cholesterol what should be done about the matter? Until we know more, no judgment can be made about the desirability of advising major dietary changes as a preventive measure against circulatory hazards, so concludes this author.

VAN ITALLIE, T. B. Dietary Constituents and Arteriosclerosis. J. Am. Dietet. A. 33, 4:352 (Apr.), 1957.

If additional information is desired regarding the articles listed in this bibliography, please communicate directly with the publications in which they appeared; the addresses are furnished for your convenience.

Am. J. Dis. Child. (American Journal of Diseases of Children), American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.

Am. J. Nursing (American Journal of Nursing), 2 Park Ave., New York 16, N. Y.

Brit. M. J. (British Medical Association House), 19 Tavistock Square, London W.C. 1, England.

Canad. J. Pub. Health (Canadian Journal of Public Health), 150 College St., Toronto 5, Canada.

J. Am. Dent. A. (Journal of the American Dental Association), 222 E. Superior St., Chicago, Ill.

J. Am. Dietet. A. (Journal of the American Dietetic Association), 620 N. Michigan Ave., Chicago, Ill.

J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago, Ill.

J. Bact. (Journal of Bacteriology), Williams and Wilkins Co., Mt. Royal and Guilford Aves., Baltimore 2, Md.

J. Immunol. (Journal of Immunology, Virus Research and Experimental Chemotherapy), Williams and Wilkins Co., Mt. Royal and Guilford Aves., Baltimore 2, Md.

J. School Health (The Journal of School Health), American School Health Association, 3335 Main St., Buffalo 14, N. Y.

M. Officer (Medical Officer), Chronicle House, 72/78 Fleet St., London, E.C. 4, England.

Modern San. (Modern Sanitation), 855 Avenue of the Americas, New York 1, N. Y.

New York State J. Med. (New York State Journal of Medicine), 292 Madison Ave., New York 17, N. Y.

Nursing Outlook, American Journal of Nursing Company, 2 Park Ave., New York 16, N. Y.

Pediatrics (Journal of the American Academy of Pediatrics), 301–327 E. Lawrence Ave., Springfield, Ill.

Pub. Health (Public Health), Society of Medical Officers of Health, Tavistock House, Tavistock Sq., London, W.C. 1, England.

Pub. Health Rep. (Public Health Reports), Gov. Ptg. Office, Washington, D. C.

Association News

EIGHTY-FIFTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
CLEVELAND, OHIO — NOVEMBER 11–15, 1957

Hotel Reservation Form Appears in April and May Issues

Poultry Sanitation Ordinance

The Committee on Evaluation and Standards has appointed an ad hoc committee on poultry sanitation. The committee has been asked to consider any action the Association should take to give guidance to state and local health departments seeking standards for wholesomeness of poultry intended for human food to supplement the existing USPHS Poultry Ordinance (PHS Publication No. 444). Need on the local and state level for such help has been voiced by public health, consumer, and labor groups.

The Public Health Service "Poultry Ordinance" was prepared by a joint public health industry committee, covering sanitary practices in plants for the commercial processing, distribution, and sale of poultry. The ad hoc committee will draw liberally on the materials already prepared by the USPHS committee.

Members of the committee are:

Henry A. Holle, M.D., commissioner, Texas State Health Department, chairman

Shirley Barker, director, Amalgamated Meat Cutters and Butcher Workmen of North America, Chicago

Robert J. Cameron, director, Division of Environmental Sanitation, City and County Bureau of Health and Hospitals, Denver

William H. Feldman, D.V.M., associate, Section on Pathologic Anatomy, Mayo Foundation, Rochester, Minn.

William F. Gunderson, Ph.D., director, Research and Quality Control, C. A. Swanson and Sons, Omaha

T. E. Sullivan, director, Division of Food and Drugs, Indiana State Board of Health, Indianapolis

The first meeting of the committee was held on May 26. A second one will be in the early fall after which a proposed statement will be submitted to the Committee on Evaluation and Standards for appropriate action.

Medical Care Section Regional Meet

"Home Care in Boston—Experience and Opportunities for the Future" was the subject of a Regional Meeting of the Medical Care Section at the Harvard School of Public Health, April 4, 1957. About 55 members and other interested persons from the Boston area attended. Participating in the discussion were representatives of five programs of home care and related teaching activities. There is considerable variety in the objectives, scope, and organization of the several programs discussed.

There was lively discussion of the unique features of each program, as well as general principles in home care administration. Many who attended suggested another session to continue the discussion of this subject of mounting interest in medical care.

The five programs were presented by:

Henry Bakst, M.D., professor of preventive medicine, Boston University Medical School

Sidney Lee, M.D., assistant director, Beth Israel Hospital, Boston

Joseph Rosenthal, M.D., director of home medical service, Boston Dispensary

Joseph Stokes, III, M.D., chief, family health program, Massachusetts General Hospital

Robert J. Haggerty, M.D., medical director, family health care program, Children's Medical Center and Boston Lying-In Hospital

The meeting was chaired by Leonard S. Rosenfeld, M.D., Massachusetts membership secretary of the Medical Care Section.

APHA membership application blank on page XXIX

SCHOOLS OF PUBLIC HEALTH ACCREDITED FOR 1957–1958

The Executive Board of the American Public Health Association, on May 9, 1957, took favorable action on the recommendation of the Committee on Professional Education concerning accreditation of schools of public health. Thirteen schools are accredited for the master of public health degree (M.P.H. in the United States, diploma of public health or D.P.H. at the University of Montreal and the University of Toronto). Nine of the schools are accredited also for the degree of doctor of public health (Dr.P.H.). Four are accredited for masters' degrees other than the M.P.H. with specialization in public health education.

Following is a list of the schools accredited for 1957–1958, the degrees for which they are accredited, and the names of the deans or directors:

Institutions Accredited by the American Public Health Association for the Academic Year 1957–1958

Institution	Degrees for Which Accredited		
		Master's	
	Dr.P.H.	M.P.H.	Other (P.H.Ed.)
California, University of School of Public Health, Berkeley 4, Calif. C. E. Smith, M.D., Dean	X	X	—
Columbia University School of Public Health and Administrative Medicine, New York 32, N. Y. Ray E. Trussell, M.D., Executive Officer	X	X	—
Harvard University School of Public Health, Boston 15, Mass. John C. Snyder, M.D., Dean	X	X	X
Johns Hopkins University School of Hygiene and Public Health, Baltimore 5, Md. E. L. Stebbins, M.D., Director	X	X	—
Michigan, University of School of Public Health, Ann Arbor, Mich. H. F. Vaughan, Dr.P.H., Dean	X	X	—
Minnesota, University of School of Public Health, Minneapolis 14, Minn. G. W. Anderson, M.D., Director	—	X	X
Montreal, University of School of Hygiene (Teaching in French), Montreal, Quebec, Canada Armand Frappier, M.D., Dean	—	X (D.P.H.)	—
North Carolina, University of School of Public Health, Chapel Hill, N. C. E. G. McGavran, M.D., Dean	X	X	X
Pittsburgh, University of Graduate School of Public Health, Pittsburgh 13, Pa. Thomas Parran, M.D., Dean	X	X	—
Puerto Rico, University of Department of Preventive Medicine and Public Health, San Juan 22, Puerto Rico Guillermo Arbona, M.D., Chairman	—	X	—
Toronto, University of School of Hygiene, Toronto 5, Ontario, Canada Andrew J. Rhodes, M.D., Director	—	X (D.P.H.)	—
Tulane University Medical School Department of Tropical Medicine and Public Health, New Orleans 12, La. M. E. Lapham, M.D., Dean	X	X	—
Yale University Department of Public Health, New Haven, Conn. Ira V. Hiscock, Sc.D., Chairman	X	X	X

News of Affiliated Societies and Branches

"Together We Grow" in Arizona

The 29th annual meeting of the Arizona Public Health Association was held in Phoenix, May 5–8, with an attendance of about 200. The general theme was the importance of working together for better health in the state. The discussion on this theme was opened at the first general session by Charles F. Blankenship, M.D., regional medical director of the San Francisco office of the Public Health Service, in "Present Trends in Public Health."

In another general session a panel discussion on "Together We Grow" was moderated by Jack McDonald, director of special services of the Arizona Public Service Company. Taking part in the discussion were the members of the APHA team who are meeting with a number of the western state health associations. They are John W. Knutson, D.D.S., president; Reginald M. Atwater, M.D., executive secretary; R. C. Arnold, M.D., chief of heart disease control program, National Heart Institute; and William C. Gibson, professor of sanitary engineering, University of Michigan School of Public Health. On the panel also was Hugh H. Smith, M.D., chairman, Pima County Board of Health.

Retiring president was Martha Pollard, nutrition consultant for the State Department of Health. In a special tribute the "Arizona Public Health News" says, "True to biblical tradition her desire is to serve—to serve efficiently and effectively where most needed. . . . She has given her best for the annual Convention."

Miss Pollard was succeeded in the presidency by Elizabeth Serban, public health nurse, Maricopa County Health Department. The new secretary is Goldie Gold of the Arizona State Health Department.

Updating Connecticut Public Health

The 1957 annual meeting of the Connecticut Public Health Association was held on May 1, Rocky Hill, with an attendance of about 250. The program was geared to consideration of developing district health departments, since most of the towns are covered only by part-time directors of health. "A Well Rounded Public Health Program" was discussed from the standpoint of "What We Should Have in Public Health?", "What We Do Have in Public Health in Connecticut?", and "What We Could Have?" Among the panelists for these discussions were George James, M.D., deputy commissioner of the New York City Health Department; Kenneth Macleod, M.D., commissioner of health, Worcester, Mass.; Carleton Sharpe, Hartford City manager; and Edmund Keleher, first selectman of Newington.

The recipient of the third C.-E. A. Winslow Award for outstanding service in public health in Connecticut was Professor Ira V. Hiscock, past-president of the American Public Health Association, long-time associate and colleague of Professor Winslow, and chairman, Department of Public Health, Yale University.

Edward M. Cohart, M.D., professor of public health, Yale University, retired as president of the Association and was succeeded by Leonard F. Menczer, D.D.S., director, Bureau of Dental

Health, Hartford Health Department. Other officers elected are:

President-Elect—Eric W. Mood, director, Bureau of Environmental Sanitation, New Haven Health Department

Vice-President—Martha M. Clifford, M.D., chief, Division of Community Health Services, State Department of Health

Secretary—Claire Reinhardt, Ph.D., instructor, Department of Public Health, Yale University

Treasurer—Eloise Eckler, chief nutrition consultant, State Department of Health

Georgia Discusses Manpower

The Georgia Public Health Association held its 28th annual meeting in Augusta, May 13–15. Louva G. Lenert, director, Public Health Engineering Division, State Department of Public Health, president, presided. The theme of the meeting was "Public Health—Our Opportunities and Our Responsibilities." During the first general session, the Honorable Marvin Griffin, Governor of Georgia, told of a year's appropriation of $300,000 to establish a study program for screening technics for mentally ill people prior to commitment to a state mental hospital. The purpose of the study is to determine whether it is possible to identify the mentally ill who can be treated adequately without hospital commitment.

Health manpower was considered at another general session. Howard Ennes, director, Bureau of Public Health, Equitable Life Assurance Society, discussed health careers in the light of 10 "moving targets" in present lay public health that are undergoing evolutionary changes. Among these he mentioned fluoridation, communicable disease control, accident prevention, environmental hazards, chronic illness, medical care and rehabilitation, mental health, occupational health, problem of the aging, and public health interrelationships within the community. At the same session, Seymour L. Wolfbein, chief, Division of Manpower and Employment Statistics, U. S. Department of Labor, reviewed the manpower outlook in the health professions. Pearl McIver, R.N., retiring chief of nursing service, Public Health Service, brought news of nursing discussions at the Ninth World Health Assembly in Geneva, May 7–25.

One half-day session was devoted to meetings of each of eight sections. A barbecue complimentary to members and guests was given by the Richmond County Health Department at Julian Smith Park.

A resolution endorsing SB 68 authorizing a commemorative stamp memorializing the pioneering work in public health of Samuel J. Crumbine, M.D., was adopted. The DeSoto Hotel, Savannah, Ga., was selected for the 1958 meeting. The new officers elected include:

President—Ernest B. Davis, director, Division of Central Administration, Georgia Department of Public Health

President-Elect—J. F. Hackney, M.D., commissioner of public health, Fulton County Health Department

Vice-President—Dorothy Barfield, supervising nurse, Murray Whitfield County Health Department, Dalton

Secretary—Carl Fox, executive secretary, Georgia Tuberculosis Association

Treasurer—Eva McDaniel

Representative to the Governing Council, APHA—A. J. Davis, M.D., commissioner of health, Richmond County Health Department, Augusta

Francis B. Elder, engineering associate, APHA, represented the American Public Health Association.

Kansas Holds 15th Annual Meeting

The Kansas Public Health Association held its 15th annual meeting in Kansas City, April 3–5. In addition to section meetings dealing with specialized problems, three general sessions discussed the larger issues of public health—"Where It Is Going" as seen by John W.

Knutson, D.D.S., president of the APHA; "How Its Challenges Are Being Met Through Community Resources" as seen by a battery of discussants and consultants; and "New Approaches to Public Health Problems" as seen by Arthur Dundon, M.D., staff psychiatrist of the Menninger Foundation, in relation to emotional problems; Homer Wadsworth, executive director, Kansas City Association of Trusts and Foundations, in relation to regional organization in meeting metropolitan public health problems; and Thomas R. Hood, M.D., state health officer, in relation to "What's New in Kansas Public Health."

At the Samuel J. Crumbine banquet special services awards were presented to Alice M. Finley, R.N., and Ivan F. Shull, respectively Topeka district public health nurse and sanitary engineer of the Division of Sanitation, Kansas Department of Health. Earl L. Koos, Ph.D., professor of social welfare, Florida State University, gave the banquet address on "Our Changing Frontiers in Public Health." The social event of the meeting was a "Chuck Wagon Fun Night" at the Wyandotte County Lake Lodge.

C. Henry Murphy, M.D., director, Topeka-Shawnee Health Department, retired as president, to be succeeded by Waldo M. Wilmore, executive secretary, Kansas Tuberculosis and Health Association. Other officers are:

President-Elect—Samuel W. Hoover, Junction City

Vice-President—Charles S. Billings, Topeka

Secretary-Treasurer—Evelyn Ford, records consultant and principal clerk, Local Health Administration, Kansas State Board of Health, Topeka

The 1958 meeting will be held in Salina on a date still to be selected.

Changing Patterns in North Dakota

The North Dakota Public Health Association, at its 14th annual meeting in Williston, March 25–26, took a look at the development of adequate health services on a state-wide basis and what is happening in special areas. The 80 persons present had a report on the "12th National Conference on Rural Health," another on the "North Dakota Heart Study." "The Public Health Nurse in Mental Hygiene," "The Misuse of Antibiotics in Domestic Animals and Its Effects on Public Health" were other topics.

Greetings from the APHA were brought by Leonard Schuman, M.D., associate professor of public health, University of Minnesota School of Public Health. He was also banquet speaker on the subject "Changing Patterns in Public Health."

A. L. Hanson was the retiring president. Newly elected officers are:

President—Bernadine Cervinski, director of health education, State Department of Health

President-Elect—Edward L. Sypnieski, field representative, North Dakota Tuberculosis and Health Association

Vice-President—Constance Dunbar, orthopedic nursing consultant, State Crippled Children's Services, Bismarck

Secretary-Treasurer—Jean E. Norton, R.N., public health nurse, Bismarck

Representative to the APHA—Mel Koons, director, Division of Laboratories, State Department of Health

Over 700 at Texas Double Meeting

The Texas Public Health Association met in Houston, February 17–20. Meeting at the same time was the Texas Association of Sanitarians. Nearly 750 persons attended the combined meetings. The state health commissioner, Henry A. Holle, M.D., addressed both the first general assembly and the sanitarians meeting, the latter on the subject, "The Sanitarian—Future in Texas."

Among the subjects discussed in general assemblies were air pollution, home safety, the relation of the Communicable Disease Center to local and state health

activities. APHA President John W. Knutson, D.D.S., represented the Association and spoke on "The Future Role of Your American Public Health Association."

The ninth annual recipient of the Association's highest award, honorary membership, was presented to J. V. Irons, Sc.D., director, Division of Laboratories, State Health Department. Mrs. Belle Blackwell, R.N., director of nurses, Houston School Health Services, received the second B. T. Bryant Public Health Memorial Award for developing the film "Health in the Classroom." Presentation of the scroll was made by the outgoing president, W. T. Ballard, senior engineer, Division of Water Pollution Control, State Department of Health.

The Texas group created a fellowship class of member, requirements for which follow closely those of APHA. Resolutions were passed favoring the licensure of sanitarians in the state, urging the passage of Senate Bill 704 for federal aid to states in state and local mosquito research and control programs, endorsing the present antipollution program as administered by the Health Department and other state agencies making up the Water Pollution Advisory Council, urging state legislation to authorize and give status to directors of local multicounty health districts, and approving a bill introduced in the state legislature designating the Department of Health as the agency to assist incorporated municipalities in improving the hygiene of housing.

Newly elected officers are:

President—Joseph N. Murphy, Jr., associate director, Division of Laboratories, State Department of Health

President-Elect—D. R. Reilly, M.D., director, San Angelo-Tom Green County Health Department

Vice-Presidents—Belle Blackwell, R.N., and John T. Warren

Executive Secretary—H. E. Drumwright, chief, public health inspection, Dallas Health Department

Virginia Celebrates Its Affiliation

The Virginia Public Health Association, which is the newest APHA affiliate, held its third annual meeting in conjunction with the Virginia State Health Workers Conference in Roanoke, May 14, 1957.

Principal speaker for the annual banquet was John D. Porterfield, Assistant Surgeon General, Public Health Service, who spoke on "What the American Public Health Association expects of its affiliates, and what the affiliates may expect from the American Public Health Association."

A resolution sponsored by S. D. Sturkie, M.D., past president, endorsed the use of fluoride in public water supplies in the state. The retiring president was Charles L. Outland, M.D., school health physician, Richmond, Va.

The following officers were elected:

President—David M. Wallace, D.D.S., chief, Dental Services, State Department of Health

President-Elect—Thomas Deane Lewis, sanitarian, Amherst County Health Department

Vice-President—James Suter, M.D., Southwest Health District, State Department of Health

Secretary—William A. Dorsey, chief, Bureau of Laboratories, Richmond Department of Public Health

Treasurer—John E. Pipes, supervisor, Bureau of Sanitation, Richmond Department of Public Health

An editorial in the spring issue of the newsletter of the Association points out the great value of the APHA's annual meetings. Among its quotes are: "A public health worker's training is not complete until he has attended at least one annual meeting of the American Public Health Association. . . . The most valuable part of the meeting (1956) however, came not from the magnitude

of the affair, but from the inspiration that seemed to permeate the entire conference. The undisputed leaders of public health today . . . seemed to inspire the whole attendance by their devotion to public health, by their imaginative thinking, and by their confidence in the belief that public health will expand into brand new areas of usefulness and service."

APHA AFFILIATED SOCIETIES AND BRANCHES

Society and Secretary

ARIZONA PUBLIC HEALTH ASSOCIATION, Goldie Gold, State Dept. of Health, Phoenix
ARKANSAS PUBLIC HEALTH ASSOCIATION, Mrs. Virginia M. Erwin, State Health Dept. Bldg., Little Rock
CALIFORNIA, NORTHERN, PUBLIC HEALTH ASSOCIATION, Alice Yeagle, Alameda County Health Dept., 15000 Foothill Blvd., San Leandro
CALIFORNIA, SOUTHERN, PUBLIC HEALTH ASSOCIATION, Byron O. Mork, M.D., University of California at Los Angeles, Los Angeles
COLORADO PUBLIC HEALTH ASSOCIATION, Margaret D. Lewis, 659 Cherokee St., Denver
CONNECTICUT PUBLIC HEALTH ASSOCIATION, Mrs. Claire Reinhardt, 310 Cedar St., New Haven
CUBAN PUBLIC HEALTH SOCIETY, Dr. Raphael Calvo Fonseca, San Rafael 1170, Havana
FLORIDA PUBLIC HEALTH ASSOCIATION, Nathan J. Schneider, Ph.D., P. O. Box 210, Jacksonville
GEORGIA PUBLIC HEALTH ASSOCIATION, Carl Fox, 33 Pryor St., N.E., Atlanta
IDAHO PUBLIC HEALTH ASSOCIATION, Mrs. D. W. McDougal, P. O. Box 563, Boise
ILLINOIS PUBLIC HEALTH ASSOCIATION, William J. Hixon, Evanston Health Dept., Evanston
INDIANA PUBLIC HEALTH ASSOCIATION, Hester Beth Bland, 1330 W. Michigan St., Indianapolis
IOWA PUBLIC HEALTH ASSOCIATION, Mary L. Wombacher, State Dept. of Health, Des Moines
KANSAS PUBLIC HEALTH ASSOCIATION, Evelyn Ford, State Board of Health, State Capitol, Topeka
LOUISIANA PUBLIC HEALTH ASSOCIATION, Mrs. Lucille Sawyer, Shreveport
MASSACHUSETTS PUBLIC HEALTH ASSOCIATION, Mrs. Elizabeth K. Caso, Dept. of Health, Cambridge
MICHIGAN PUBLIC HEALTH ASSOCIATION, Maurice J. Mayer, 405 Hollister Bldg., Lansing
MINNESOTA PUBLIC HEALTH CONFERENCE, D. S. Fleming, M.D., State Dept. of Health, University Campus, Minneapolis
MISSISSIPPI PUBLIC HEALTH ASSOCIATION, H. E. Boone, P. O. Box 1700, Jackson
MISSOURI PUBLIC HEALTH ASSOCIATION, Mrs. Nadia Craver, 5th Fl., State Office Bldg., Jefferson City
MONTANA PUBLIC HEALTH ASSOCIATION, Emma Wright, Box 811, Harve
NEBRASKA PUBLIC HEALTH ASSOCIATION, Matilda McIntire, M.D., Omaha-Douglas County Health Dept., Omaha
NEW MEXICO PUBLIC HEALTH ASSOCIATION, Robert Howell, 305 Terrace Ave., N. E., Albuquerque
NEW YORK CITY, PUBLIC HEALTH ASSOCIATION OF, Joseph Kadish, 164 W. 174th St.
NEW YORK STATE PUBLIC HEALTH ASSOCIATION, Mary C. Egan, New York State Department of Health, Albany, N. Y.
NORTH CAROLINA PUBLIC HEALTH ASSOCIATION, Mrs. Betty E. Briggs, State Board of Health, Raleigh
NORTH DAKOTA PUBLIC HEALTH ASSOCIATION, Jean E. Norton, R.N., Box 133, Bismarck
OHIO PUBLIC HEALTH ASSOCIATION, Virginia Jones, Ohio Dept. of Health, Dayton
OKLAHOMA PUBLIC HEALTH ASSOCIATION, Marjorie Butler, 3400 North Eastern, Oklahoma City
OREGON PUBLIC HEALTH ASSOCIATION, Barbara Kahn, State Board of Health, Portland
PENNSYLVANIA PUBLIC HEALTH ASSOCIATION, Robert H. Conn, 303 N. Second St., Harrisburg
PUERTO RICO PUBLIC HEALTH ASSOCIATION, Nilda Torres, Apartado 211, San Juan 2
SOUTH CAROLINA PUBLIC HEALTH ASSOCIATION, Laura M. DeMarse, State Health Dept., Columbia
SOUTH DAKOTA PUBLIC HEALTH ASSOCIATION, Louis E. Remily, State Dept. of Health, Pierre
TENNESSEE PUBLIC HEALTH ASSOCIATION, C. B. Tucker, M.D., State Dept. of Health, 420 Sixth Ave., N., Nashville
TEXAS PUBLIC HEALTH ASSOCIATION, H. E. Drumwright, City Health Dept., Dallas
UTAH PUBLIC HEALTH ASSOCIATION, Bertha Pedersen, State Dept. of Health, 45 Fort Douglas Blvd., Salt Lake City
VIRGINIA PUBLIC HEALTH ASSOCIATION, William A. Dorsey, P. O. Box 2088, Richmond
WASHINGTON STATE PUBLIC HEALTH ASSOCIATION, Kathleen Burwell, R.N., State Dept. of Health, Smith Tower, Seattle
WEST VIRGINIA PUBLIC HEALTH ASSOCIATION, Harry M. Huff, State Dept. of Health, Charleston
WISCONSIN ASSOCIATION FOR PUBLIC HEALTH, Paul Weis, 1 W. Wilson St., Madison
SOUTHERN BRANCH, A.P.H.A., Joseph M. Bistowish, M.D., P. O. Box 1117, Tallahassee, Fla.
WESTERN BRANCH, A.P.H.A., Mrs. L. Amy Darter, State Dept. of Health, 2151 Berkeley Way, Berkeley, Calif.

Employment Service

The following pages present information for those seeking public health personnel and for those seeking positions in public health. Other information concerning vacancies and personnel available is on file in the Association office. Anyone wishing to have the benefit of this additional information can obtain it by writing to the Vocational Counseling and Placement Service of the Association.

Advertising space in these pages is available at special rates for the use of employers or individuals. The charges are $5 for the first 50 words or fraction thereof and $1 for each additional 10 words or fraction thereof. There is no charge to members or Fellows of the Association who desire to utilize the **Positions Wanted** portion of these pages. **Closing date** for receipt of advertisements is the first of the month preceding the desired month of publication.

POSITIONS AVAILABLE

Psychiatrist—APA member or Board eligible. Joint appointment with Health Department and Medical College of Alabama for training in service program. Salary open. Write, Health Officer, Box 2591, Birmingham, Ala.

Physician—with administrative and public health, pediatric, or obstetrical background, to direct Section of Maternal and Child Health and Crippled Children's Services. Six weeks' vacation. Merit System appointment. Starting salary $13,230 with annual increases. Dr. Charles Hayman, Commissioner, Alaska Department of Health, Juneau, Alaska.

Director of Public Health Research and Statistics—Required by Saskatchewan Department of Public Health. Salary range $828–$994 per month. Requirements: Graduation from an approved school of medicine, experience in epidemiology and biometrics, and preferably experience in an operating public health program or equivalent experience in medical research programs; to direct the research and statistical studies of the Saskatchewan Department of Public Health. Applications: Forms available at Public Service Commission, Legislative Bldg., Regina, Saskatchewan, Canada. Applicants should refer to competition No. c/c4597.

Medical Social Work Adviser—Open to female citizens of the United States who possess the minimum qualifications. Salary range $5,096–$6,136 per annum.

Medical Social Worker—Open to female citizens of the United States who possess the minimum qualifications. Salary range $4,472–$5,356 per annum.

Medical Technologist I—Open to citizens of the United States who possess the minimum qualifications. Salary range $3,588–$4,264 per annum.

Public Health Nurse—Open to female citizens of the United States who possess the minimum qualifications. Salary range $3,900–$4,680 per annum.

Nurse Anesthetist—Open to female citizens of the United States who possess the minimum qualifications. Salary range $3,900–$4,680 per annum.

Complete details may be secured by writing to Personnel Director, Municipal Building, Hartford, Conn.

Physician—to serve with department of health clinical team working with children having a variety of crippling conditions. Will have professional and administrative responsibility for operation of specified areas of crippled children services. Requires completion of general internship in approved hospital and not less than two years' employment in pediatrics or completion of two-year internship in pediatrics and M.P.H. Also, eligibility for license to practice medicine and surgery in Connecticut. Merit System, sick leave, annual vacation. Reply to Glendon A. Scoboria, State Personnel Director, State Office Building, Hartford, Conn.

Health Officer—$760 or higher, depending on experience. Licensed medical physician and surgeon, experienced in field of tuberculosis and tuberculosis control to administer and direct tuberculosis control program. Arizona Merit System, 1632 W. Adams, Phoenix, Ariz.

Physician—in state department of health to be in charge of the project for the early care, health planning, and correlation of services to illegitimately pregnant mothers and babies born out of wedlock. Requires completion of general internship in approved hospital and not less than two years' employment in practice of pediatrics or obstetrics, or completion of two years' internship in pediatrics or obstetrics in approved hospital and M.P.H. Also, eligibility for license to practice medicine and surgery in Connecticut. Reply to Glendon A. Scoboria, State Personnel Director, State Office Building, Hartford, Conn.

Director, Diagnostic and Research Tuberculosis Laboratory—Central Florida; physician or nonphysician microbiologist or clinical chemist. Part-time employment will be considered. Write Dr. Albert V. Hardy,

Director, Bureau of Laboratories, State Board of Health, P. O. Box 210, Jacksonville, Fla.

Available professional positions in the Erie County, N. Y., Department of Health, comprising a metropolitan area of over one million people, including the City of Buffalo:

Deputy Health Commissioner—Administrative supervisor local health services, including extensive programs in public health nursing, environmental sanitation, and operation of district offices; teaching opportunities in schools of medicine and nursing; vacation, sick leave, retirement, and transportation. Requirements: License to practice medicine in the State of New York or eligibility therefor; M.P.H. and some administrative experience. Salary $9,700–$12,500 per annum with appointment expected at the maximum, $12,500. Apply: Donald M. Neff, Personnel Officer, County of Erie, 210 Pearl St. Bldg., Buffalo 2, N. Y.

Director, Communicable Disease Control—Directs communicable disease control in county health department; conducts epidemiological investigations and educational programs. Teaching opportunities in schools of medicine and nursing. Vacation, sick leave, retirement. Requirements: License to practice medicine in the State of New York or eligibility therefor; M.P.H. and two years' satisfactory experience in responsible public health position devoted largely to diagnosis and control communicable diseases. Position under civil service. Salary $8,610–$11,090 per annum with automatic annual increments of $620. Apply: Donald M. Neff, Personnel Officer, County of Erie, 210 Pearl St. Bldg., Buffalo 2, N. Y.

County District Health Officer—Plans and administers general public health program in district of county health department. Teaching opportunities in schools of medicine and nursing. Vacation, sick leave, retirement. Position under civil service. Requirements: License to practice medicine in the State of New York or eligibility therefor; one year satisfactory resident postgraduate training in public health and one year full-time experience in public health. Salary $7,680–$9,900 per annum with automatic annual increments of $555. Apply: Donald M. Neff, Personnel Officer, County of Erie, 210 Pearl St. Bldg., Buffalo 2, N. Y.

Public Health Educator—Assists in conducting health education program in county health department. Prepares news releases, pamphlets, bulletins. Speaks on health topics. Vacation, sick leave, retirement. Position under civil service. Requirements: M.P.H. degree with major in public health education and two years' health education experience. Salary $4,185–$5,485 per annum with appointment expected at $4,510 per annum with automatic annual increments. Apply: Donald M. Neff, Personnel Officer, County of Erie, 210 Pearl St. Bldg., Buffalo 2, N. Y.

Director, Division of Disease Control—Position involves broad responsibility for planning and carrying out disease control program in state. May involve deputy executive officer responsibilities. Public health training and experience necessary. With preventive medicine boards, salary range $1,010–$1,240. Entrance salary flexible. Also, vacancy for **Public Health Physician in Disease Control Division or Child Health Division**—Entrance salary dependent on qualifications within range $770–$1,070. Write Executive Officer, State Board of Health, Helena, Mont.

Director of Health—Administer public health program for progressive industrial city, 70,000 population. Requires physician eligible for membership in American Board of Preventive Medicine with M.P.H. and three years of public health experience. Maximum age 50. Must be United States citizen. Salary $12,814–$15,214. Obtain further information and brochure of city from Personnel Officer, 254 Municipal Building, Hamilton, Ohio.

Public Health Physician—for director of Butler County Health Department, Butler, Pa. (population 103,000). Permanently established department which has just received overwhelming vote of confidence of three and one-half to one in county-wide referendum. Well qualified staff includes a public health engineer, public health nurses, public health educator, and sanitarians. Three-year-old department with excellent opportunity for program development. Opportunity for association with the Graduate School of Public Health, University of Pittsburgh, for qualified man. Excellent personnel policies, unsurpassed retirement plan, fine educational, cultural, and recreational facilities. Starting salary $12,500–$14,500, depending on qualifications. Address inquiries to Edward C. Lutton, M.D., Chairman, Butler County Board of Health, 426 N. Main St., Butler, Pa.

Public Health Physician—with training and experience in administration and epidemiology to serve as director of the Bureau of Preventable Diseases and Medical Services. Broad range of general administrative and clinical supervisory responsibilities include control of acute communicable diseases, tuberculosis, venereal diseases, and operation of medical clinic, cancer diagnostic clinic, mental health program, and a specialized municipal hospital. Annual operating budget of bureau is $800,000. Position under civil service. Vacation, sick leave, medical and hospital insurance, and liberal pension plan. Salary range $11,742–$12,410. Write to E. R. Krumbiegel, M.D., Commissioner of Health, Milwaukee Health Department, 200 E. Wells St., Milwaukee 2, Wis.

Qualified Public Health Nurse—Must be eligible for California certificate. Salary

$376–$458; travel allowance for use of private car. Write to San Benito County Health Department, Health Center Bldg., Hollister, Calif.

Public Health Nurse—Opportunity to work in combined program. Baccalaureate degree and California PHN certificate required. Starting salary dependent on experience. Car allowance $20 flat plus five and one-half cents a mile. Write Martha D. Adam, Director, Public Health Nursing Services of San Mateo County, 225 – 37th Ave., San Mateo, Calif.

Public Health Nursing Director—Position open September, 1957. Supervising experience and B.S. in public health nursing required. M.P.H. desirable. Staff of 10 public health nurses doing strictly public health nursing in very desirable location in well established department with complete public health program, in fine modern building. Salary $5,100. Write J. H. White, M.D., Director, Weld County Health Department, Box 521, Greeley, Colo.

Wanted: **Public Health Nurse Supervisors**—Baltimore County Health Department. Suburban, rural, and industrialized areas. Population 400,000. Eight miles from Baltimore City. Generalized program, including school health program. Cars furnished. Sick leave and vacation after six months. Five-day week, retirement plan, 13 paid holidays. Present salary $4,263–$5,151. Write to Dr. William H. F. Warthen, Health Officer, Baltimore County Health Department, Towson 4, Md.

Wanted: **Qualified Public Health Nurses**—in the Baltimore County Health Department. Suburban, industrialized, and rural areas. Population 400,000. Eight miles from Baltimore. Generalized program, including school health program. Cars furnished. Sick leave and vacation after six months. Five-day week, retirement plan, 13 paid holidays. **Senior Public Health Nurse** beginning salary $3,399; **Junior Public Health Nurse** $3,099. Write to Dr. William H. F. Warthen, Health Officer, Baltimore County Health Department, Towson 4, Md.

Public Health Nursing Positions—Available in combination health department and visiting nurse service. Public health nursing preparation required. Generalized service. Agency in a university community. Beginning salary $3,996, yearly increments. Social Security. Please write Miss Patricia Walsh, Nursing Director, Washtenaw County Health Department, County Bldg., Ann Arbor, Mich.

Public Health Nursing Positions—Available in Health Department with the City of Flint, a rapidly growing City of 180,000 population. Beginning, intermediate, and administrative positions are available. Five-day, 40-hour week, with liberal retirement, vacation, and sick leave policies. Car furnished. Beginning salary rates: $3,952, $4,329, or $4,654, depending on experience and qualifications. Automatic increases and longevity rates for length of service. Apply Flint Civil Service Commission, City Hall, Flint, Mich.

Wanted: **Public Health Nurse Supervisor**—in generalized program. Kent County Health Department, Grand Rapids, Mich. Growing program and staff. Salary range $4,446–$5,356. Social Security, retirement, and generous personnel policies. Write Director of Nurses, Kent County Health Department, 316 Ottawa Ave., N.W., Grand Rapids 2, Mich.

Executive Director—Visiting Nurse Association of Camden, N. J., Inc., growing agency in industrial Delaware Valley. Five qualified staff nurses; excellent personnel policies, including hospitalization, retirement, and Social Security. Public health nursing degree required; also experience in supervision and administration. Beginning salary $6,000. Write President: Mrs. E. A. Conlin, 1431 Crestmont Terrace, Camden 4, N. J.

Allegan County, Michigan, has immediate openings for the following:

Public Health Nurses—Starting salaries $3,720 and $3,960, according to qualifications, with annual $120 increases. To carry on generalized public health nursing programs. Minimum qualifications include licensure in nursing in Michigan and one year of academic public health training.

Sanitarian — Generalized program, etc. Generalized program in environmental sanitation; emphasis on milk, food, and resort sanitation. Graduate from four-year college; science background preferable. Salary $4,200, with annual $120 increases.

Allegan County, Mich., is a growing county, with an estimated population of 54,000, situated on Lake Michigan. We have liberal personnel policies, including a five-day week, Social Security, vacation of two days per month cumulative to 24 working days and liberal travel allowance. Write A. B. Mitchell, M.D., Director, Allegan County Health Department, Allegan, Mich.

Industrial Hygienists — The Industrial Hygiene Section of the Medical Research Division requires two young industrial hygienists. They should be under 30 years of age with degrees in chemical engineering, sanitary engineering, or chemistry. Graduate training in industrial hygiene is desirable, but not required. As a member of a team, will work in an advisory capacity in performing industrial hygiene studies for affiliates of Standard Oil Company (N.J.), including basic studies for evaluation and control of environmental health problems associated with producing,

refining, manufacture of petrochemicals, and in marketing. Starting salary commensurate with experience and ability. Give full details of education, experience, desired salary, availability date, and references. All inquiries will be considered promptly and held confidential. Address replies to Esso Research and Engineering Company, Employee Relations—C, P. O. Box 51, Linden, N. J.

Sanitary Engineer—$444. One year of graduate study or one year of experience in field of public health or consulting firm required. **Sanitary Engineer**—$490. One year of graduate study and four years' experience in field of public health or consulting firm or five years' experience as above. Write Merit System Supervisor, State Office Bldg., Phoenix, Ariz.

Public Health Engineer—Qualifications: master's degree with at least two years of experience in a state or local health department. Duties: direction of activities of Sanitation Division, one of three major divisions of the Bureau of Environmental Sanitation; supervision of 37 employees. Opportunity for advancement. Civil service position. Vacation, sick leave, medical and hospital insurance, and liberal pension plan. Salary range $7,355–$7,687. Write to E. R. Krumbiegel, M.D., Commissioner of Health, Milwaukee Health Department, 200 E. Wells St., Milwaukee 2, Wis.

Sanitary Inspector—for generalized sanitation program in western New York county health department. Excellent staff, retirement program, liberal vacation, car provided for official use. Graduation from high school, including courses in general science, mathematics, and chemistry and two years of satisfactory sanitary inspection experience required. Salary $3,073.20–$3,586.80. Write Sanitary Engineer, Box 573, Olean, N. Y.

Program Associate—National Tuberculosis Association. Salary range $6,636–$8,820. Beginning salary will depend upon candidate's experience and qualifications. Duties: Develop program opportunities for voluntary tuberculosis associations in the fields of respiratory illness and air hygiene. Coordinate investigative, fact-finding, and program projects in these fields and develop pilot projects in state and local associations. Work with advisory committee of specialists in developing policy and program. Qualifications: Bachelor's degree; graduate work in public health desirable. Knowledge and comprehension of public health and significant responsible experience in voluntary or official agency work. Opportunity for growth and reclassification of position. Retirement plan, life insurance, hospital and surgical plans, one month vacation, moving expenses paid. Interested persons write Miss Clarissa E. Boyd, Director, Program Development Division, National Tuberculosis Association, 1790 Broadway, New York 19, N. Y.

Health Education Specialist (School Health Consultant)—Plan and develop state-wide school health program; provide consultation and advisory service to school and public health personnel; participate in inservice training of professional groups and assist school administrators with teacher training; coordinate department program with other state and voluntary agencies. One year graduate study public health; three years' experience in education, public relations, or public health; teaching experience. Salary $5,640–$6,660. Travel allowance, vacation, sick leave, Social Security, retirement. Dr. Amy L. Hunter, State Board of Health, Madison, Wis.

Assistant Director in Education—for long-established public health nursing agency providing city-county-wide generalized program. Liberal personnel policies. Salary open. Apply Director, Public Health Nursing Association, 120 S. E. First St., Evansville 8, Ind.

Senior Public Health Statistician—Duties include the supervision of the work of a statistical analysis section in the Division of Vital Records of a health department in Los Angeles County with a population of over 2,500,000. Requirements include a bachelor's degree plus two years' experience in planning and applying statistical procedures and interpreting statistical data, one year of which must be in the field of public health. Salary range $464–$575. An increase is expected July 1, 1957. Write Health Officer, Los Angeles County Health Department, 241 N. Figueroa St., Los Angeles 12, Calif.

Health Educator—Develop health education program in multicounty region in and around Seattle, Wash.; also work on state-wide programs. Requirements: M.P.H., woman between 25–40, car. Eight cents per mile and travel allowance, Social Security, medical coverage. Salary open. Victor Schoch, Executive Director, Washington State Heart Association, 3121 Arcade Bldg., Seattle 1, Wash.

Health Educator—to work in coordinated city-county health department program serving a population of about 300,000. Progressive and expanding program. Salary range of $4,888–$5,902. Opportunity to advance. For details write Health Officer, 316 Ottawa Ave., N.W., Grand Rapids 2, Mich.

Bacteriologist-Serologist (or Medical Technologist)—Must have bachelor's degree. Five-day work week, excellent laboratory facilities, paid vacation and sick leave, retirement plan. State merit system. Salary dependent upon education and experience. Contact Division of Laboratories, Wyoming

Department of Public Health, State Office Bldg., Cheyenne, Wyo.

International Vacancies

Public Health Sanitarians—There are several positions open in Latin America and the Caribbean area for public health sanitarians in rural public health and malaria/Aedes aegypti mosquito eradication programs. Essential qualifications are formal public health training and some experience in the above-mentioned fields. Spanish is desirable in nearly all positions and essential in some. Salaries range from $3,600 to $4,800 per annum, plus income tax reimbursement and liberal overseas and family allowances. For further details contact Personnel Office, PASB/WHO, 1501 New Hampshire Ave., N.W., Washington 6, D. C.

POSITIONS WANTED

On Box Numbers, Address APHA at 1790 Broadway, New York 19, N. Y.

B.S., M.P.H., Dr.P.H.—Broad academic training in public health disciplines with special emphasis in hospital administration and epidemiology. Good teaching experience in anatomy, biostatistics, epidemiology, and hospital administration. Voluntary agency experience and official agency training. Seeks position in hospital administration, epidemiology, health planning, or programming. Young (35), veteran, travel O.K. Write **Box C-34,** Employment Service, APHA.

Sanitary Engineer—M.S.; 15 years' diversified experience in public health engineering, air pollution, and administration of government research; age 38, married, family. Write **Box E-35,** Employment Service, APHA.

Tuberculosis Physician—European, graduate of Prague University, 12 years' experience in TB sanatoriums and chest clinics in Germany and South America (at present), desires position in sanatorium, chest clinic, or other related work. Age 35, married, three children. Write **Box PH-73,** Employment Service, APHA.

Commercial Advertisements

All communications on the following commercial advertisements should be sent to Burneice Larson, Medical Bureau, Suite 605, 900 North Michigan Avenue, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

(a) Psychiatrist to head mental health program and public health physicians to direct crippled children, maternal and child health departments; duties entirely administrative and clinical consultations; outside U. S.; salary for psychiatrist, $20,000; for directors of services, $13,000–$15,000. (b) Health commission, county health departments; full-time cooperating unit; near university center, Midwest; $15,000. (c) Epidemiologist; preventive medicine staff, foreign operations leading industrial company; $14,000, plus $4,000 family maintenance; federal tax free. (d) Public health physician to serve as associate director, well known foundation; some travel within limited area. (e) Medical director qualified to reorganize medical staff and direct educational program, voluntary general hospital, 700 beds; university city, East. (f) Sanitarian; degree in sanitary sciences, public health or engineering, three years' experience required; foreign operations, major industrial company; $10,000–$12,000. (g) Health inspector experienced in meat and dairy products inspection; foreign; $700. (h) Assistant sanitarian; city health department, college town, Missouri. (i) Assistant professor, public health nursing; four-year basic program; state university, South; $6,000–$7,200. (j) Public health nurse to direct generalized program including school services and, also, staff nurses; salaries $6,500 and $4,800 respectively; California. (k) Public health supervisors; excellent opportunity outside U. S.; field traveling or base operations; $5,600–$7,600. (l) Health educator; department of health, university city, Midwest; duties primarily professional education with members of health department, community groups and public generally; $5,400–$6,300. (m) Senior bacteriologist, public health laboratory, New York; minimum $5,000. (n) Woman physician to teach personal health, health of family and health education; university appointment; $5,500.

OPPORTUNITIES WANTED

WANTED—Opportunities for public health physicians, nurses, health educators, engineers, laboratory personnel. Candidates in all parts of the country, available for administrative, academic and staff appointments. Negotiations strictly confidential.

—ALLEGHENY COUNTY HEALTH DEPARTMENT—

An expanding program in one of the nation's largest local health departments makes available the following positions. All positions under merit system. Excellent personnel policies and generous travel plan. Qualified candidates may be offered opportunity for affiliation with the Graduate School of Public Health, University of Pittsburgh.

DEPUTY DIRECTOR AND CHIEF OF DISTRICT HEALTH SERVICES— (Salary subject to negotiation)

To administer under the director a county-wide program of public health.

Requirements: At least five years of responsible experience in public health administration, preferably with some experience in a large local health department or a state health department; eligibility for licensure in Pennsylvania; eligibility for certification by the American Board of Preventive Medicine and Public Health.

DISTRICT HEALTH OFFICER—$13,500–$15,000

To develop and administer a comprehensive program of public health services in a county district of approximately 300,000 people.

Requirements: Three years of responsible experience in public health administration; eligibility for licensure in Pennsylvania; eligibility for certification by the American Board of Preventive Medicine and Public Health.

CHIEF, MEDICAL SERVICES—$13,500–$15,000

To develop and administer a comprehensive program of preventive medical services in a county of approximately 1,500,000 people.

Requirements: Five years of responsible experience in public health administration; eligibility for licensure in Pennsylvania; eligibility for certification by the American Board of Preventive Medicine and Public Health.

CHIEF, DISEASE CONTROL—$13,500–$15,000

In the Bureau of Medical Service, to develop and supervise a county-wide program of epidemiology.

Requirements: Three years' experience in epidemiology with at least one year in an administrative capacity; eligibility for licensure in Pennsylvania and M.P.H.

CHIEF, MENTAL HEALTH—(Salary subject to negotiation)

To develop a comprehensive program of preventive mental health service within the Health Department.

Requirements: Four years of professional experience and training, including completion of the formal training requirements for certification by the American Board of Psychiatry and Neurology; eligibility for licensure in Pennsylvania.

For further information, please write to Dr. Arthur G. Baker, Director, Allegheny County Health Department, 620 City-County Bldg., Pittsburgh 19, Pa.

—ALLEGHENY COUNTY HEALTH DEPARTMENT—

An expanding program in one of the nation's largest local health departments makes available the following positions. All positions under merit system. Excellent personnel policies and generous travel plan. Qualified candidates may be offered opportunity for affiliation with the Graduate School of Public Health, University of Pittsburgh.

CHIEF, DENTAL HEALTH—$10,500

To develop and administer a county-wide dental health program, including, but not limited to, consultative services to staff of the Health Department, other agencies, and professional groups.

Requirements: Must be a dental graduate, be eligible for licensure in dentistry; possess an M.P.H. degree; and have at least two years' experience in public health dentistry.

BIOSTATISTICIAN—$8,500–$10,000

To plan and direct the processing of mortality and natality data, analysis of data, population estimates, publication of data.

Requirements: Master's degree with statistics as major, courses in the biological or social sciences; or master's degree in mathematics, biological science, or social science plus graduate work in statistics. Four years' experience in professional statistical work, including two years' experience in supervisory capacity.

INDUSTRIAL HEALTH ENGINEER—$8,500–$10,000

To carry out investigations of places of employment to determine locations of occupational hazards; to assist in organization and direction of occupational health activities of a county-wide unit.

Requirements: B.S. degree in engineering; master's degree in engineering, industrial hygiene or public health; and three years' experience in industrial hygiene activity or five years of experience in industrial health activity.

PUBLIC HEALTH ENGINEERS—$8,000–$9,500

Directs and coordinates the sanitary engineering program on a district basis in a county unit.

Requirements: Five years' responsible professional experience, including one year in an administrative capacity; B.S. in engineering and M.P.H.

PUBLIC HEALTH ENGINEER OR SANITARIAN—$6,000–$7,250

Supervises a generalized sanitation program in an assigned area.

Requirements: Three years' experience in a generalized program; B.S. and M.P.H. or B.S. and master's degree in specialized field with three years' experience in public health field.

For further information, please write to Dr. Arthur G. Baker, Director, Allegheny County Health Department, 620 City-County Bldg., Pittsburgh 19, Pa.

—ALLEGHENY COUNTY HEALTH DEPARTMENT—

An expanding program in one of the nation's largest local health departments makes available the following positions. All positions under merit system. Excellent personnel policies and generous travel plan. Qualified candidates may be offered opportunity for affiliation with the Graduate School of Public Health, University of Pittsburgh.

PUBLIC HEALTH NURSE CONSULTANTS—$5,200–$7,500

To offer consultation service within the Department of Public Health and to other community agencies in (1) school health and (2) chronic disease.

Requirements: Registration or eligibility for registration in Pennsylvania; preparation in public health nursing, plus a master's degree taken in a program approved for the preparation of a consultant in the specialty in which consultation is offered; a minimum of five years' experience in public health nursing in supervision and in the specialty.

INSTITUTIONAL NUTRITIONIST—$4,600–$5,600

To provide consultation service to institutions for children, the aged, the convalescent, the chronically ill, nursing homes and other institutions on food service, menu planning, purchasing, budgeting, and personnel management.

Requirements: B.S. degree with a major in foods and nutrition, plus a dietetic internship in an accredited hospital course. Two years' experience in a hospital or other institution in the past five years in an administrative capacity.

PUBLIC HEALTH NURSE—$4,000–$5,750

Generalized public health nursing which includes family health service, group work, school nursing, and clinic service.

Requirements: Registration, or eligibility for registration, in Pennsylvania; completion of an approved program of study in public health nursing as a part of a basic nursing program in a university school of nursing; or a baccalaureate degree in general nursing or public health nursing; or partial preparation for public health nursing in a university program plus experience in a generalized public health nursing program under qualified supervision; preparation in a nursing specialty of transfer value to public health nursing.

For further information, please write to Dr. Arthur G. Baker, Director, Allegheny County Health Department, 620 City-County Bldg., Pittsburgh 19, Pa.

News from the Field

WHO News

10th World Health Assembly

Professor Jacques Parisot of France, as outgoing president, was chairman of the 10th World Health Assembly, which convened in the Palais des Nations, Geneva May 7–May 24. In his opening address, Dr. Parisot discussed the need to protect populations against both physical and mental effects of the use of atomic energy. He said "Historians of the future may well wonder why so much effort today is devoted to precautions against the potential dangers of the peaceful use of atomic energy while medical men and health workers alike appear to pay much less attention to possible pollution of the environment resulting from atomic weapon trials."

The session, made up of more than 300 delegates from 88 member and associate member states and 43 organizations having special relationship with WHO, reviewed its 1956 program. During that year it collaborated with health administrations in some 120 countries and territories for over 700 public health programs.

Among the actions taken at the Assembly were:

Adoption of a 1958 budget of $13,500,000, representing a substantial increase over the 1957 budget.

Election of Afghanistan, Australia, Egypt, Germany (Federal Republic), Liberia, and the United States as the six member states to designate persons on WHO's Executive Board. These succeed the six outgoing members whose mandates expire this year. The Board is composed of 18 health experts designated by but not representatives of their governments.

Extension of the term of the director-general, Dr. M. G. Candau, whose five-year term expires in July, 1958, as proposed by Costa Rica.

Presentation of the fifth Darling Foundation Medal and a prize of 1,000 Swiss francs to Dr. Paul F. Russell of the Rockefeller Foundation, "for outstanding achievements in the control of malaria," particularly in developing the technic of insecticide spraying.

Presentation of the Leon Bernard Prize, also of a medal and 1,000 Swiss francs to Marcin Kacprzak, rector of Warsaw Medical Academy "in recognition of his outstanding contribution and practical achievement in the field of social medicine."

Agreement to undertake a research program in the epidemiology of cancer —a comparative study of the variations between cancer types in different countries in the hope of finding a clue to the origin of the disease. Air pollution with cancerigenic substances, water pollution with industrial wastes, the increase in leukemia, the influence of food additives, the effect of increased radiation through x-ray and atomic installations were all suggested as underlining the urgency of this type of research.

The United States proposal to require a two-thirds instead of a simple majority of members present and voting for approval of the WHO budget was rejected.

Welcoming four countries that have resumed active participation in the work of WHO—Albania, Bulgaria, Poland, and the Soviet Union.

Unanimous election of Dr. Sabih Hassau Al-Wahbi, former minister of health of Iraq, as president of the 10th Assembly; vice-presidents are Drs. M. El-Materi and Donald A. Cameron, respectively of Tunisia and Australia. Chairmen of the two main committees, Program and Budget, and Administration, Finance, and Legal Matters are Dr. B. M. Clark of the Union of South Africa and M. Akira Saita of Japan.

Surgeon General Leroy E. Burney, heading the United States delegation, brought President Eisenhower's greetings and his conviction that WHO is an example of how international cooperation benefits mankind. Congressman John E. Fogarty, another member of the U. S. delegation, promised that everything possible would be done to make the 11th World Health Assembly, scheduled to meet in the United States in 1958, "an auspicious and successful occasion."

Dramatizing the Malaria Program

Reference has several times been made in this column to the current global campaign to eradicate malaria. UNICEF has prepared a dramatic story of the eradication program. In the village of Ywama, near Rangoon, Burma, eight of every ten persons were infected with malaria until 1955. Then the 600 dwellings were sprayed with DDT, safeguarding the 3,000 inhabitants. In all of Burma over six million persons were protected; in 1957 protection for all eight million will be completed. In the world as a whole UNICEF estimates that 250 million persons still have malaria attacks every year, with one out of every 100 dying of the disease.

UNICEF has a special interest in malaria because it directly kills many infants and contributes to the other principal infant killers—congenital defects, intestinal disorders, and infectious diseases. Beyond infancy it kills less frequently but lowers resistance and stunts both physical and mental growth. "A malarious population tends to live on a bare subsistence basis, unable to contribute to the common good."

UNICEF now gives jointly to governments asking aid for malaria eradication programs, provided adequate necessary malaria service is established, supporting legislation is introduced, and local financial support is pledged to complete the plan. This is illustrated by a 1955 allocation of $2,400,000 to Mexico for the first stage of a program covering 17 million people. For the five-year program UNICEF is prepared to furnish supplies totaling $8,400,000, while the Mexican government will spend $12,500,000. Since UNICEF first voted aid for malaria control programs in Asia it has helped more than 50 countries.

New Comprehensive Medicine Approach

A program in comprehensive medicine designed to teach medical students a broad approach to patient care, including environmental and psychological as well as physical factors in illness, has been undertaken at Temple University School of Medicine, Philadelphia. It is being supported by a three-year grant from the Commonwealth Fund. The course is supervised cooperatively by the Departments of Psychiatry, Internal Medicine, and Social Service. William A. Steiger, M.D., assistant professor in medicine, is administrator of the program.

The aim of the course is to emphasize the student-physician's understanding of man as a social being, with particular emphasis upon psychiatric orientation and including home visits. The students assume a "family doctor" relationship with patients selected from the medical clinic of the University Medical Center. The program is geared to the entire

four-year course of the medical student. Conferences for analyses of patients and their problems with integrated teams of internists, psychiatrists, gynecologists, and social workers summarize and point up the student's experience.

The Church and Social Welfare

A first-time conference on policy and strategy in social welfare of the Protestant churches in the United States was held in Atlantic City, May 7–10. It was called by the Department of Social Welfare and the Division of Home Missions of the National Council of Churches. Leonard Mayo, director of the Association for the Aid of Crippled Children, is chairman of the Department of Social Welfare. In summing up the four days of intensive discussion, he declared that the program projected would have special relevance for the 17 million Americans who are aided through Protestant welfare activities costing a billion dollars annually.

The first principle adopted is that American Protestant churches have the duty of protecting the well-being and social justice of all people. Hence churches are called upon to move into social and political action to bring about needed social change.

The following priorities were agreed upon:

1. Strengthening family life, overcoming juvenile delinquency, and expanding services to children, working mothers, and unmarried parents.
2. Adequate housing for all without discrimination.
3. Justice and equality of opportunity among the races.
4. Services and facilities for physical and mental health, including needs of the physically handicapped and chronically ill. Wholesome recreation facilities for all age groups.
5. Development of new opportunities for the aging.
6. Physical and spiritual rehabilitation of prisoners, drug addicts, and alcoholics.
7. More and better schools, open to all children.
8. Assistance to migrant laborers, Indian Americans, and recent immigrants.
9. Development of genuine community life transcending divisions of society.
10. Conservation and development of natural resources.
11. A just and peaceful work order, including economic and political freedom and prevention of atomic pollution.

The decision and proposed program embodied in eight major documents formally approved by the conference have been referred back to the 30 constituent denominations for final approval. A full report of the conference will be published late in 1957.

Border Public Health Association

Public health problems common to the 10 border states were aired when the United States-Mexico Border Public Health Association held its annual meeting April 9–12 in the Hilton Hotel, San Antonio, Tex. This 15th annual convention brought together public health officials and workers from Texas, Arizona, New Mexico, and California, and from the Mexican States of Baja California, Chihuahua, Sonora, Coahuila, Nuevo Leon, and Tamaulipas. Over 205 persons registered and many guests and wives of delegates attended the social functions and sessions.

Each of six sections—maternal and child health, tuberculosis, nursing, sanitation, venereal disease, and veterinary public health—held several sessions. The first mentioned agreed to prepare a directory of maternal and child health personnel on both sides of the border. Among other problems uppermost in the various sections and general discussions were chest x-rays of all migrant workers leaving the area, training of nurses, water pollution along the Rio Grande, malaria eradication in Mexico, fluoridation, eradication of Aedes

aegypti, extension of venereal disease diagnosis and treatment to all, bat rabies, brucellosis in cattle and goats, training of public health personnel, integrating specialized health activities with the general public health program, and public health planning in event of disaster.

Resolutions were passed for continuing support and strengthening of programs for eradicating mosquito-borne diseases by the governments of both Mexico and the United States; for a system of intercountry reporting of tuberculosis similar to that now in effect for venereal disease; for further research on Brucella melitensis in both countries and a joint committee to plan a coordinated study of brucellosis in the border states; for expanding serologic testing of migrant workers; and for extension of regular meetings of staffs of adjoining border health departments in the solution of various public health problems.

In recognition of their "accomplishments in Pan American fellowship and public health, and in appreciation of their long service to the organization," honorary membership certificates were presented to:

Dr. Ignacio Morones Prieto, secretario, Secretaria de Salubridad y Asistencia Mexico, D. F., Mexico

Dr. Fred L. Soper, director, Pan American Sanitary Bureau, WHO, Washington, D. C.

Dr. Manuel E. Pesqueira, sub-secretario, Secretaria de Salubridad y Asistencia, Mexico, D. F.

Dr. Donald Davey, assistant director, Division of Local Health Services, California Department of Public Health

Officers for 1957–1958 are:

President: Malcolm H. Merrill, M.D., director, California Department of Public Health

President-Elect: Eng. Alberto Ortiz Irigoyen, director general de construccion, Secretaria de Recursos Hidraulicos, Mexico, D. F.

Vice-Presidents: Dr. Belle Dale Poole, child health consultant, California Department of Public Health

Dr. Hector Torres, Sangines, Jefe, Servicios Materno Infantiles, Mexicali, Baja California

Secretary: Dr. Sidney B. Clark, El Paso Office, Pan American Sanitary Bureau

The Border Association will meet again in Hermosillo, Sonora, Mexico, in April, 1958.

EDITORS NOTE: An extensive report of this meeting was received from the secretary in less than a month after the meeting was held. Publishing in its entirety is precluded by limitations of space. But the editors want to commend the promptness and fullness of the report.

Pittsburgh Public Health Seminar

The Schools of the Health Professions at the University of Pittsburgh held a series of seminars in connection with the inauguration of Edward H. Litchfield as twelfth chancellor of the university on May 9–11. The inaugural theme was "New Dimensions of Learning in a Free Society."

The theme of the all-day Public Health Seminar on May 10, one of 17 in such related fields as medicine, dentistry, pharmacy, and nursing, was "Contributions of the Sciences to Public Health in the Years Ahead—Implications for the University." Here the moderators for the two sessions were John A. Bugher, M.D., director of medical education and public health, Rockefeller Foundation, and Abel Wolman, professor of sanitary engineering, Johns Hopkins School of Hygiene and Public Health.

Speakers and their subjects for the two sessions were:

Charles H. Best, M.D., Banting and Best Department of Medical Research, University of Toronto—Contributions to the Biological Sciences

Brock Chisholm, M.D., former director general, World Health Organization—Community and International Health

Carlyle F. Jacobsen, executive dean for medical education, State University of New York—Education for Health

Fillmore H. Sanford, Ph.D., associate director, Joint Commission on Mental Health—

Social Science in Public Health in the Years Ahead

James A. Shannon, M.D., director, National Institutes of Health—Health Research

Warren Weaver, M.D., vice-president for the Natural Sciences and Medical Sciences, The Rockefeller Foundation—Physical Sciences and Public Health.

Lasker Medical Journalism Awards

Three 1956 Albert Lasker Medical Journalism Awards were presented to two writers and a broadcasting system at a special luncheon in New York City on May 1. Luncheon speaker at the meeting was Representative John Fogarty of Rhode Island, chairman of the Subcommittee on Health Appropriations, U. S. House of Representatives. His subject was "Hope for the Future in Medical Research."

The awards consist of $2,000 each, illuminated scrolls, and silver statuettes of the Winged Victory of Samothrace, symbolizing victory over death and disease.

The Radio-Television Award was made to the Public Affairs Department of the Columbia Broadcasting System and Station WCBS-TV, New York, jointly for the television documentaries, "Out of Darkness" and "The Wassaic Story," dealing with mental illness and mental retardation, respectively, and presented over the CBS network in 1956.

Robert S. Bird, staff writer of the New York Herald Tribune, received the newspaper award for a July, 1956, series of six articles on rising trends of venereal disease rates, particularly among teen-agers.

The magazine award was won by Roland H. Berg, medical and science writer, Look Magazine, for "The State of the Nation's Health," published in April, 1956. This was the first in a series on health planned for and in most instances written by Mr. Berg for Look Magazine. Other titles are: What We Know About Cancer, Your Health, Diet Won't Cure Your Arthritis, X-rays in Color, What We Know About Allergy, The Unhappy Facts about Happy Pills, Your Doctor's New Conscience, Why Too Many Babies Die, and Children in Search of Sanity.

St. Louis Rehabilitation Institute

A new rehabilitation institute to serve disabled persons in the St. Louis metropolitan area is being planned by Washington University, St. Louis. Here also personnel will be trained in rehabilitation procedures, new methods of treatment will be developed, and an active research program relating to chronic disabilities carried on. Defects to be treated include hemiplegia, paraplegia, amputations, cardiac disabilities, muscular dystrophy, cerebral palsy, alcoholism, and speech and hearing difficulties. Robert E. Shank, M.D., professor of preventive medicine, will be director of the institute.

The institute, including the Departments of Physical and Occupational Therapy, will be housed in a new air-conditioned building, construction of which is beginning in July, 1957. About one-sixth of the cost is being met from Hill-Burton Funds, the remainder from funds provided by the late Mrs. Irene Johnson, for whom the institution will be named. The National Foundation for Infantile Paralysis is helping to support the teaching program.

Staffing Local Health Services

The eighth in the Public Health Service series on "Organization and Staffing for Full-Time Local Health Services" has recently come off the press, this one for the year ending December 31, 1954. This report is based on information submitted to the Public Health Service in the reports made annually by full-

time local health organizations and receiving either state or federal assistance.

There is an extensive chapter on extent of coverage by full-time local health service which indicates 89 per cent of the population and 72 per cent of the counties. However, these figures are based on a definition of local health services that includes state supervisory districts that give no direct service and no matter how thinly staffed.

There are illuminating chapters on population and other characteristics of the organized areas, on their financial capacity, and personnel engaged in public health programs. The summary indicates that personnel rates increased with increase in average income per person. "However, the national expenditure pattern reflects that the level of expenditure is too low for the operation of a well-rounded public health program which will meet the needs of the average community."

The News in Federal Social Welfare

"What Is New and Different in the Health, Education, and Welfare Department's Budget and Program for the Year Ahead?" was the subject of a one-day meeting in Washington in February at which Reginald M. Atwater, M.D., executive secretary, represented the American Public Health Association. Called by the Social Legislation Information Service, the meeting was attended by representatives of some 300 voluntary national organizations. Its purpose was twofold, to provide the organizations with the factual background and information needed for an understanding of the many new program proposals of the Department of Health, Education, and Welfare and to enable them to get the additional information needed to explain and interpret these national developments to their membership and their state and local affiliates.

A general presentation was made by an officer of each of the five divisions of HEW—Public Health Service, Office of Education, Social Security Administration, Office of Vocational Rehabilitation, and the Food and Drug Administration. These presentations were accompanied with a number of fact sheets outlining the current programs, the budget needs and the proposals for continuing or changing programs. There is also a three-page summary of highlights of developments under recent legislation.

The statements and fact sheets have been put together in a 64-page mimeograph document for the convenience of those who need to understand the many new proposals affecting health, education, and welfare. Document No. 7, February, 1957, Social Legislation Information Service, 1346 Connecticut Ave., N.W., Washington 6, D. C.; $2.

Course in Rehabilitation Methods

New York University-Bellevue Medical Center has announced the 1957–1958 rehabilitation courses to be given at the Institute of Physical Medicine and Rehabilitation. A four-week course on "Advanced Physical Rehabilitation Methods for Physical Therapists" will be given November 18–December 13, 1957, and repeated February 3–28 and April 28–May 23, 1958. Certified physical therapists are eligible; tuition is $120.

Also offered for the coming season is a three-week seminar in physical rehabilitation for nurses. The first session will be October 21–November 8, 1957. The course is repeated January 6–24 and March 31–April 18, 1958. Tuition is $100 for the course with provision for possible stay one to four weeks longer for additional clinical observation, practice, and field trips. For this the fee is $25 per week.

Further information and application blanks from Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, 400 East 34th St., New York 16.

Second Nuclear Congress

The Second Nuclear Engineering and Science Conference sponsored by 26 technical societies, including the American Public Health Association, organized and presented as a means for disseminating knowledge on this new technical field, drew more than 16,000 delegates. Included was an extensive technical exhibit. General topics around which the technical papers were developed were: Protection of Water Supplies, Waste Disposal, Educational Use of Reactors, and New Limits and Codes for Radiation Protection. Organizations participating in the congress were the 2nd Nuclear Engineering and Science Conference, 5th Hot Laboratories and Equipment Conference, and 5th Atomic Energy in Industry Conference.

A Sheepskin Is Not Enough

Appreciating the fact that completion of college training is but the first step in the development of a professional person the Industry Training Committee, Detroit area, has undertaken a six-point program for the further training of engineers in the first five years following graduation. The six points are: orientation and training in industry, appraisal and counseling on performance, continued education, reading list for engineers, professional identification, and integration into the community. The Detroit program is an outgrowth of a pilot program in Cincinnati, still in operation.

The Industry Training Committee is sponsored jointly by the Engineering Society of Detroit and universities and industry in the area and is affiliated with the Engineers Council for Professional Development.

A series of seven booklets discussing the six points has been prepared by the committee as its first step in the professional training of young engineers.

New NPCA Headquarters

The William O. Buettner Memorial Building of the National Pest Control Association, 250 West Jersey St., Elizabeth, N. J., was dedicated on May 9. The new headquarters building was named after the late Mr. Buettner, who was executive secretary of the Society for 19 years until his death in 1953, in recognition of "his able leadership and his wholehearted devotion to the pest control industry."

Employ the Handicapped News

A recent meeting of the Advisory Council of the President's Committee for Employment of the Physically Handicapped adopted a revised statement of recommended policy on employment of the physically handicapped. The policy is printed in a brown and white leaflet addressed to public administrators with the slogan "Helping them helps you." It includes a checklist through which administrators can evaluate their handicapped hiring policies.

Also recently completed is the 1956–1957 Membership Directory of NEPH. Also available is "The Rights of Disabled People Under the Social Security Law as Amended in 1956," published by the Social Security Administration and sold by the Government Printing Office at $2.50 per 100.

The two items mentioned earlier are available from NEPH and are presumably free.

In this connection also may be noted "Rehabilitation Literature 1950–1955."

This bibliography is described as "a recent 600-page book with over 5,000 references to rehabilitation literature." It was prepared by librarians of the National Society for Crippled Children and Adults and published by McGraw-Hill, 330 W. 42nd St., New York City.

The 1957 National Employ the Physically Handicapped Week will be observed the second week in October.

Parke, Davis Public Interest Award

An award for "distinguished advertising in the public interest" has been made by The Saturday Review, national weekly magazine, to Parke, Davis and Company. For the past year and a half, this pharmaceutical firm has been sponsoring advertisements on the theme, "prompt and proper medical care may well turn out to be one of the biggest bargains of your life." The series is designed to give people "a better understanding of the fair and reasonable costs, and priceless value, of modern medical care."

The committee of 38 judges screened more than 300 advertising campaigns in general magazines of which 59 survived for the final voting. The Parke, Davis award was among 26 made by The Saturday Review.

Leukemia Research Grants

The Leukemia Society, Inc., is accepting applications for grants-in-aid to support research projects on leukemia and allied diseases for the year 1957–1958. Such applications may be made throughout the year. In order to be reviewed at the meetings of the Selection Committee held in September and December, 1957, and in March and June, 1958, they should be received not later than August 15 and November 15, 1957, and February 15 and May 15, 1958, respectively.

Herbert C. Lichtman, M.D., associate professor of medicine, State University of New York, Department of Medicine, Brooklyn, is chairman of the selection committee that reviews applications from North America.

Qualified investigators are encouraged to apply to Leukemia Society, Inc., 27 William Street, New York 5, New York.

PERSONALS

FAYE G. ABDELLAH, PH.D., chief, Nursing Education Branch, Public Health Service, is on leave as nursing consultant, Western Interstate Commission for Higher Education, Boulder, Colo., and as executive secretary of the Western Council on Higher Education for Nursing.

APPOLLONIA O. ADAMS, R.N., former deputy chief, Division of Nursing Resources, Public Health Service, has succeeded MARGARET G. ARNSTEIN * as division chief, the latter having moved up to chief of public health nursing for the Service.

NICHOLAS F. ALFANO, M.D., former associate medical director, has succeeded IRVING P. BORSHER, M.D., as medical director, Medical-Surgical Plan of New Jersey (Blue Shield).

REGINALD M. ATWATER, M.D., DR.P.H.,* was recently elected an Honorary Associate Fellow of the American Academy of Pediatrics.

LEWIS B. BARRETT, consultant on group work, recreation, education, and community planning, has succeeded CLAYTON JONES as regional representative, American Social Hygiene Association, in the Northeast (First Army) Area leaving the former director, CLAYTON JONES, to concentrate on community organization in personal and family living in the area.

J. LLOYD BARRON,* director of sanitation, National Biscuit Company, New York City, and representative of the American Public Health Association on the Construction Standards Board since 1942, has been elected chairman of the Construction Standards Board, American Standards Association.

EDGAR E. BERG, M.D., M.P.H.,† former health officer of Umatilla County, is now health officer of Coos County (Ore.), Coquille. He

* Fellow.
† Member.

has been succeeded in Pendleton by WALTER P. BROWNE, M.D.

HESTER BETH BLAND,* consultant in health and physical education, Indiana State Board of Health, has been elected to represent the Midwest group in the national affairs of the American Association of Health, Physical Education, and Recreation.

H. LAMAR BOLAND, formerly regional representative in the Southeast (Third Army) Area, Atlanta, Ga., of the American Social Hygiene Association, has been made director of field service in the national office, New York City. He has been succeeded in Atlanta by FRANK MCFALL, former personnel and public relations director, Woodmen Company, Atlanta.

ETHEL G. BROOKS, R.N., chief, Nursing Section, Massachusetts Department of Public Health, has retired but is remaining as consultant for six months.

MADISON B. BROWN, M.D.,† director of administrative services, has also been appointed associate director, American Hospital Association, Chicago, Ill.

HOMER N. CALVER,* secretary, Public Health Committee of the Paper Cup and Container Institute, is on leave of absence serving as visiting professor of public health to the American University of Beirut, Lebanon, for the summer of 1957.

GEORGE R. COWGILL, PH.D.,* professor of nutrition, Yale University, and editor-in-chief, Journal of Nutrition, has received the 1957 Osborne and Mendel Award of $1,000 and a scroll of the American Institute of Nutrition for his fundamental research contributions to the knowledge of B-vitamins and protein nutrition.

GAIL M. DACK, M.D., PH.D.,† director, Food Research Institute, and professor of bacteriology, University of Chicago School of Medicine, has received the 10th Pasteur Award of the Society of Illinois Bacteriologists, for his contributions to food microbiology.

THEODORE R. DEEMS, M.D., is health officer of Linn County (Ore.), Albany, succeeding JOHN W. GUEPE, M.D.

LT. COLONEL EDWARD J. DEHNE, MC,* Commanding Officer of the U. S. Army Environmental Health Laboratory, Army Chemical Center, Md., has been designated consultant in occupational medicine to the Surgeon General of the Army.

DANIEL L. DROSNESS, M.P.H.,† formerly a member of the Public Health Service Indian Health Survey team, has been appointed assistant professor of hospital administration, Graduate School of Public Health, University of Pittsburgh.

JOHN C. DUFFY, M.D., former plant physician, International Business Machines Corporation, has been named coordinator of plant and laboratory medical services in the New York City headquarters.

SARAH VANCE DUGAN, director, Kentucky State Health Department Food and Drugs Division, is the winner of the Harvey W. Wiley Award presented by the Association of Food and Drug Officials of the United States for her influence in enforcement of food and drug laws.

A. HOWARD FIELDSTEEL, PH.D., former production virologist, Cutter Laboratories, has been appointed director, Virus Laboratory Services, Montana State Board of Health.

ELIZABETH S. FORCE, former teacher, Toms River (N.J.) High School, has been appointed family life education specialist and writer, Education Division, American Social Hygiene Association.

FRANK R. FRECKLETON, M.D., M.P.H.,* formerly with ICA in Indonesia, is now consultant, General Health Services, Kansas City Regional Office, Public Health Service.

JOHN T. GENTRY, M.D.,* former Syracuse District health officer, has been appointed health director, Syracuse Region, comprising 13 counties. He succeeds RAY CHAMPLIN, M.D., retired.

RICHARD B. HOLT, M.D., a senior career medical officer and former hospital and medical facilities director, Charlottesville, Va., Regional Office, Public Health Service, is now chief medical officer, United States Coast Guard, succeeding JOSEPH F. VAN ACKEREN, M.D., retired.

JOHN ANTHONY HRONES, D.Sc., former director, Dynamic Analysis and Control Laboratory, Massachusetts Institute of Technology, is now vice president for academic affairs, Case Institute of Technology, Cleveland.

ROGER KNIPE, M.D., D.P.H.,* former deputy director of health, Buffalo-Erie County, N. Y., is now health officer, Snohomish County, Wash., succeeding H. L. MCMARTIN, M.D.†

HERBERT L. LOMBARD, M.D.,* director, Division of Cancer and Chronic Disease, Massachusetts Department of Public Health, has received the 1957 award of the Massachusetts Division, American Cancer Society, for "a distinguished contribution in the fight against cancer."

* Fellow.
† Member.

HERBERT R. MORGAN, M.D.,† chairman, Bacteriology Department, University of Rochester School of Medicine and Dentistry, and director, Rochester Health Bureau Laboratories, recently spent a month in Spain aiding the National School of Health in Madrid to set up a tissue culture and virus laboratory.

FREDERICK D. MOTT, M.D.,* medical administrator, Miners Memorial Hospital Association of Kentucky, has resigned to become executive director, Community Health Association, United Automobile Workers, Detroit, effective September 1. At UMW he is being succeeded by his former assistant, JOHN NEWDORP, M.D.*

HELEN GER OLSON, M.P.H.,† director of nutrition, Kansas State Board of Health, has resigned to join the Division of Indian Health, Public Health Service, Washington, D. C.

HARRY PALMER has succeeded GEORGE M. SHIFFER as director, Hospital Planning and Construction Section, Oregon State Health Department, Portland.

ROBERT G. PATERSON, PH.D.,* retired executive, Ohio Tuberculosis Association, received the 1957 Will Ross Medal of the National Tuberculosis Association at its recent 52nd annual meeting in Kansas City.

JOSEPH M. PISANI, M.D., assistant dean, New York University College of Medicine in Brooklyn, has resigned to become medical director, Bankers Trust Company, New York City.

MARY POWER,* executive secretary, Fort Greene District Health Committee, Brooklyn Tuberculosis and Health Association, has retired and is on a six-week tour of Europe and Russia.

DONALD H. ROBINSON, M.D.,* chief, Medical Services, Allegheny County (Pa.) Health Department, has resigned to become assistant medical director, Standard Oil Company of California, San Francisco.

FRED B. ROGERS, M.S., M.D., M.P.H.,† assistant professor of preventive medicine and public health, Temple University School of Medicine, Philadelphia, has been appointed editor of the Transactions and Studies of the College of Physicians of Philadelphia.

ROSE SACHS,† formerly with the Biometrics and Evaluation Division, Department of Medicine and Surgery, Veterans Administration, is now a mathematical statistician, Program Planning and Analysis Division, Food and Drug Administration.

JONAS E. SALK, M.D.,* received the University of Chicago's highest medical award, the Howard Taylor Ricketts Prize on May 17. As a part of the ceremony he gave the annual Ricketts Prize Lecture on the subject, "Poliomyelitis—from the Perspective of Biology."

HIRAM SIBLEY, former director of program development, Yale-New Haven Medical Center, has been appointed secretary, Council on Hospital Planning and Plant Operation, American Hospital Association. HELEN D. MCGUIRE, former public health analyst and chief, Medical Record Studies, Division of Public Health Methods, Public Health Service, is now assistant secretary, Council on Professional Practice, American Hospital Association.

WILLIAM A. SODEMAN, M.D.,* professor and chairman, Department of Medicine, University of Missouri School of Medicine, has resigned to become Magee professor of medicine and head of the Department of Medicine, Jefferson Medical College, Philadelphia.

WILLIAM STEWARD, D.D.S., is serving the Tulsa City-County (Okla.) and the Delaware, Nowata, and Ottawa Counties District Health Departments as director of dental health. WILLIAM HOPPER, D.D.S., will work similarly in the Pontotoc and Pottowatomie health district. Both are recent graduates of the University of Tennessee Dental School.

JANE DAVIES SUTHERLAND,† formerly assistant secretary general, International Society for the Welfare of Cripples, has been appointed consultant on health and welfare services, Association of the Junior Leagues of America, Inc., New York City.

CHARLES S. TEMPLETON, former chief hospital administrator, has succeeded to the executive secretaryship of the North Carolina Medical Care Commission following the retirement of JOHN A. FERRELL, M.D.*

MEREDITH THOMPSON, DR.ENG.,* assistant director, Bureau of Environmental Sanitation, New York State Health Department, was recently given a luncheon in honor of his retirement and was presented with a 25 Year Service Award.

JOSEPHINE VERRENCIA, former director, Social Service Department, Hartford Rehabilitation Center, is now medical social work consultant, Division of Cancer and Other Chronic Diseases, Connecticut State Health Department.

JOHN M. WHITNEY, M.D.,* director of the Health Office, Federal Civil Defense Administration, has resigned to join the staff of the Dallas Regional Office, Public Health

* Fellow.
† Member.

Service. He has been succeeded in the FCDA by M. M. VANSANAT, M.D., formerly head of the Medical Care Division.

ROBERT YOHO, director,* Division of Health Education, Indiana State Board of Health, has received the Honor Award of the American Association of Health, Physical Education, and Recreation for outstanding achievement and devotion to duty.

DEATHS

NELL V. BEEBY, R.N.,† editor, American Journal of Nursing, on May 17 (Medical Care Section).

HAVEN EMERSON, M.D.,* emeritus professor of public health practice, Columbia University, New York, N. Y., on May 21 (Epidemiology Section).

FRANKLIN A. FERGUSON, M.D.,† of Portland, Me. (Medical Care Section).

GERTRUDE PIENTA † of Lansing, Mich. (Statistics Section).

LEONARD H. MALE, assistant regional engineer, Kansas City Regional Office, Public Health Service, U. S. Department of Health, Education, and Welfare, on April 30.

THOMAS TETREAU, M.D.,* retired city health officer Portland (Me.) on April 1 at the age of 88 (Health Officers Section).

DR. JAN HARM TUNTLER,† professor of social and preventive medicine, State University of Groningen, Holland (Medical Care Section).

CONFERENCES AND DATES

American Public Health Association, 85th Annual Meeting, Cleveland, Ohio. Headquarters: Public Auditorium, November 11–15.

State and Regional Public Health Meetings:

Arkansas Public Health Association. Marion Hotel, Little Rock, Ark. August 5–6.

Minnesota Public Health Conference. Nicollet Hotel, Minneapolis, Minn. September 19–20.

Pennsylvania Public Health Association. University Park, Pa. August 18–22.

South Dakota Public Health Association. Yankton, S. D. September 25–27.

Meetings of Other Organizations Coming in July, August, and September:

American Congress on Maternal Care. Palmer House, Chicago, Ill. July 8–12.

American Hospital Association. Atlantic City, N. J. September 30–October 3.

American Veterinary Medical Association. Cleveland, Ohio. August 19–22.

Cuban Public Health Society. Instituto Finlay, Havana, Cuba. August.

International Congress on Nutrition (Fourth). Paris, France. July 24–29.

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International Society for the Welfare of Cripples (Seventh). London, England. July 22–26.

National Association of Sanitarians and the First Congress of the International Federation of Sanitarians Organizations. Olympic Hotel, Seattle, Wash. July 15–19.

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